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Frictional, Structural, and Cyclical Factors in Louisiana Unemployment.

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FRICTIONAL, STRUCTURAL, AND CYCLICAL FACTORS IN LOUISIANA UNEMPLOYMENT

A DISSERTATION

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"All your anxiety is because of a desire for harmony

. . . seek disharmony, then you will find peace"

--12th Century Persian Poet,
cited in William O. Douglas,
Go East Young Man

For Janet Eileen Trulson,
who would have believed the Persian;
and especially for her sister Susan,
who does not.

ACKNOWLEDGMENTS

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ABSTRACT

This study explores the relative empirical significance of some potential barriers to employment confronting the Louisiana unemployed through an investigation of the frictional, structural, and cyclical components of total unemployment. The empirical results of this investigation are used to derive implications for some controversial public policy issues.

Each component of total unemployment implies a set of unique barriers that may be confronting the unemployed. The extent to which a lack of information or intrastate geographical immobility may be barriers to employment confronting the Louisiana unemployed is determined in an investigation of frictional unemployment. The extent to which educational or skill deficiencies are barriers to employment confronting the unemployed is determined in an investigation of structural unemployment. Finally, the extent to which a lack of job availability in the aggregate may be a barrier to employment confronting the unemployed is determined in an investigation of cyclical unemployment.

Each barrier to employment suggests a unique public policy alternative. A lack of information and/or intrastate geographical immobility suggests that information and/or relocation assistance may be necessary. A lack of education and skills implies that job training may be necessary. Finally, a lack of total job availability implies

a possible need for public service employment or expansionary monetary or fiscal policies. These public policy alternatives have been the subjects of longstanding debate; an empirical investigation of their relative potential for reducing unemployment is therefore a question of substantial interest.

An empirical assessment of frictional, structural, and cyclical factors in total unemployment is made possible by the availability of detailed surveys of job vacancies and the unemployed. These surveys were undertaken in Louisiana in November of 1973. Together, these data sets allow a decisive statistical separation of frictional, structural, and cyclical factors.

Using these data sets, and supplementary information, the study reaches four basic conclusions. First, 38 percent of the unemployed could have found employment suited to their skills somewhere in the state in November of 1973. This finding indicates that neither job training nor public service employment were necessary for a reduction of unemployment among these individuals. Second, 47 percent of the unemployed would have found a change in occupations both possible and necessary to intrastate employment in November of 1973. Further, the study finds that this change in occupations would probably have required substantial reorientation in terms of education and skill. These findings indicate that job training could have the potential for reducing Louisiana unemployment by a substantial margin. Third, 15 percent of the unemployed would have found employment in any occupation within the state impossible as of November, 1973. This finding

indicates that public service employment would have been necessary if these individuals were to have secured employment within the state. Finally, the study finds that job training and public service employment are likely to be needed most by unemployed nonwhites and males, while unemployed white females are likely to benefit most from information services.

Limitations of the study, which suggest an agenda for future research, include (1) the static nature of the comparisons, (2) neglect of the possible effects of interstate migration, and (3) restriction of the analysis to only those jobless individuals actively seeking work.

CHAPTER ONE

SOME PROBLEMS AND ISSUES

The rate of unemployment has been, and continues to be, an economic indicator of utmost concern. In the 1930's, when one-fourth of the labor force in the United States became jobless, it "became clear that unemployment was the single most important indicator of economic distress in an industrial economy."[1] In more recent years, the consumer price index competes with the unemployment rate for the title of "most important" economic indicator.[2] Nevertheless, the economic problems and public policy issues associated with unemployment remain as significant concerns to the nation in general, and to individual states in particular.

Some Economic Problems

Garth Mangum, a historian of unemployment and public policy, has noted that concerns about unemployment generally arise from two perspectives. One perspective views unemployed labor as a human resource

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[1]Robert E. Hall, "Why is the Unemployment Rate so High at Full Employment?," Brookings Papers on Economic Activity, (2:1972), pp. 373.

[2]This competition between the two economic indicators arises from an apparent inverse statistical relationship between levels of unemployment and rates of inflation.

capable of contributing to higher levels of personal income, production, and consumption. Unemployment is costly and inefficient from this perspective because some potential production, income, and consumption are forever lost when idle labor resources exist. A second perspective views unemployment from a reference of fairness. In this view, disparities in the distribution of unemployment among individuals, or groups of individuals, is inefficient. Put succinctly, unemployment is of concern because of the economic problems of efficiency and equity.[3]

There is a wealth of empirical support for these concerns. The evidence includes information relevant to the nation in general, and to Louisiana in particular.

Unemployment is indeed costly in terms of lost output, income, and consumption. According to an established statistical "law", every percentage-point reduction in employment costs the nation three percentage points in terms of Gross National Product.[4] In Louisiana, it has been estimated that the state's comparatively higher rate of unemployment relative to the Southern average has resulted in a loss

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[3]Garth Mangum, The Emergence of Manpower Policy, (New York: John Wiley and Sons, 1969).

[4]Arthur Okun, "Potential GNP: Its Measurement and Significance," in The American Statistical Association, Proceedings of the Business and Economics Section (1962), pp. 98-104.

of $267.2 million in annual earnings in 1973.[5] The costs of unemployment appear to be substantial.

There are substantial disparities in the distribution of unemployment. These disparities are particularly apparent when white rates of unemployment are compared with nonwhite rates of unemployment. An often-used rule of thumb is that nonwhite unemployment rates are twice that of whites. This relationship has been observed in studies of both national rates and Louisiana rate of unemployment.[6]

The problems posed by unemployment have, to an increasing degree, become state problems. Significant responsibility for programs intended to promote economic growth, and narrow distributional disparities through the reduction of unemployment has been delegated to state jurisdictions. This responsibility has not come without significant concommitant public policy issues, however.[7]

Some Public Policy Issues

Public policy on unemployment at the state level involves a combination of labor market information services, job training, and

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[5]Geneva B. Carroll, An Analysis of the Unemployed in Louisiana, (Baton Rouge: Louisiana Office of State Planning, 1975), pp. 4.

[6]For a national perspective, see Edward M. Gramlich, "The Distributional Effects of Higher Unemployment," Brookings Papers on Economic Activity (2:1974), pp. 293. For a Louisiana perspective, see Carroll, op. cit., and Public Affairs Research Council, "Louisiana Unemployment Highest in South," Economic Trends, (Baton Rouge Public Affairs Research Council of Louisiana, 1974), pp. 3.

[7]See Mangum, op. cit., and Sar A. Levitan and Joyce K. Zickler, The Quest for a Federal Manpower Partnership, (Cambridge: Harvard University Press, 1974).

public service employment. Given existing institutional arrangements, these three public policy measures represent the means by which state government units pursue the goal of reducing unemployment and lessening distributional disparities.[8] The relative effectiveness of these measures has long been debated.

The provision of information on available jobs and available labor supplies is perhaps the least controversial, and least debated, form of public policy on unemployment. There is general agreement that providing information services of this kind assists both the unemployed in their job search, and the employer in finding qualified employees.

If there is any debate on the efficacy of information, it is on the question of whether or not it is sufficient. According to one view, all that is necessary for "full" employment is an adequate knowledge of job and labor availabilities.[9] In this view, the

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[8]The Comprehensive Employment and Training Act (CETA) of 1973, the Emergency Employment Act of 1971, the Economic Development and Public Works Act of 1965, the Area Redevelopment Act of 1961, the Manpower Development and Training Act of 1962, the Wagner-Peyser Act of 1935, and the Smith-Hughes Act of 1917 have provided the institutional framework and financial capability for attacking state and local unemployment through various combinations of informing, training, and employing in public service jobs.

[9]Armen A. Alchian, "Information Costs, Pricing, and Resource Employment," in Edmund S. Phelps, ed., Microeconomic Foundations of Employment and Inflation Theory, (New York: W. W. Norton and Company, Inc.), pp. 27-52.

unemployed are simply "between jobs which exist and for which the jobless are qualified."[10] Critics of this hypothesis question its implicit assumption that the unemployed could have found employment.

One reason often given for a pessimistic view on information services as a sole public policy measure is that the unemployed may not be qualified for the existing jobs. In this view, job training may be necessary if unemployment is to be reduced.

The proponents of job-training argue that training represents a "sound investment for society" because the "gains in production, earnings, and tax receipts are likely to outweigh the costs," particularly since "many of the unemployed trainees (would) have been receiving unemployment compensation in any case".[11] Training is likely to be of particular necessity as total unemployment falls with an upturn in the business cycle and skill shortages develop in new lines of work, according to this view. Finally, government-financed programs are held to be necessary according to the proponents of job training, because private firms are not likely to provide skills which might be used by rival firms.

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[10] Ibid. Alchian's view is one example of the job search theory of unemployment. In his words, this theory argues for "massive frictional unemployment".

[11] Gerald G. Somers, ed., Retraining the Unemployed, (Madison: The University of Wisconsin Press, 1968). In a cost-benefit study, Somers finds that training pays. See also Charles Killeingsworth, "Unemployment: A Structuralist View," in Kenneth G. Elzinga, ed., Economics: A Reader, 2nd ed., (New York: Harper and Row, 1975), pp. 211-215.

The critics of job training argue that "in a fully employed economy, private employers can be expected to continue their 'traditional' practice of training workers to fill job vacancies," and "in a depressed economy there is little point in training workers for nonexistant jobs".[12] Job training has been deemed incapable of reducing total unemployment because of a "displacement" effect of newly-trained individuals simply trading employment status with existing employed individuals.[13] Finally, job training has sometimes been criticized because newly-trained individuals may compete with and depress the wages of those who are already employed.[14] As alternatives to job training, some critics suggest that emphasis should be placed on either information services or on public service employment.

The proponents of public service employment argue that information services or job training measures are insufficient because the job openings simply do not exist.[15] Further, it is argued that public service employment is "the most manageable and effective method for

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[12] Somers, op. cit.

[13] See Norman J. Simler, "Long-Term Unemployment, The Structural Hypothesis, and Public Policy," American Economic Review, (December, 1964), pp. 985-1001, or Richard Musgrave, "Demand Vs. Structural Unemployment" in W. G. Bowen and F. H. Harbison, eds., Unemployment in a Prosperous Economy, (Princeton: Princeton University Press, 1965), cited in Richard Perlman, Labor Theory, (New York: John Wiley and Sons, 1969).

[14] See, for example the comments by Martin Gainsburgh in The Measurement and Interpretation of Job Vacancies, (Princeton: National Bureau of Economic Research, 1966).

[15] Simler, op. cit., and Musgrave, op. cit.

stimulating immediate mass employment" and "quite attractive when one considers the alternative of unemployment."[16]

As might be expected, critics of public service employment point to "alternatives" other than unemployment. Critics of public service employment charge that this alternative is either unnecessary, or incapable of reducing unemployment without undesirable side effects. It has been charged unnecessary because it is argued that sufficient job openings exist in the private sector. Some undesirable side effects held to occur from public service employment are inflation arising from a usurpation of private sector labor demand, an inequitable administration procedure, and a likely mere substitution of federal for state funding for existing public service jobs and hence zero effect on unemployment.[17]

Among many economists, these public policy issues pose questions of degree rather than questions of kind. In severe recession or depression, public service employment is accepted as appropriate.[18] When the rate of unemployment falls on the upturn of the business

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[16]Governor's Office of Federal Affairs and Special Projects, Development of a Statewide Program to Plan and Coordinate Economic Growth, (Baton Rouge: Governor's Office of Federal Affairs and Special Projects, 1975), pp. 42.

[17]See "Public Service Employment: Achievements and Open Issues," Manpower Report of the President, (Washington: U.S. Government Printing Office, 1975), or Alan Gartner, ed., Public Service Employment: An Analysis of Its History, Problems, and Prospects, (New York: Praeger Publishers, 1973).

[18]See Perlman, op. cit., Chapter Eight, and the many references therein in support of this assessment.

cycle, the issue of job training assumes greater importance. Though information services are desirable anytime, they are of paramount importance when employment is high and labor markets are tight.

Given the responsibility for several programs intended to reduce overall unemployment and mitigate adverse distributional effects, the question of the degree to which lack of information, lack of skill, or lack of aggregate opportunity are barriers to employment confronting the unemployed is of substantial significance. To what extent does Louisiana unemployment represent individuals who are simply between jobs? How important are education and skill as barriers to the employment of the unemployed? Is there an absolute lack of job openings in the statewide Louisiana labor market? Finally, what is the relative significance of these barriers for different demographic groups? These questions are empirically explored in this study.

CHAPTER TWO

THEORETICAL FRAMEWORK: TYPES OF UNEMPLOYMENT AND THEIR MEASUREMENT

This chapter develops a conceptual framework for the empirical investigations which follow. The definition of unemployment used by the Bureau of Labor Statistics of the United States Department of Labor is reviewed and assessed. As a unitary concept, this definition fails to adequately isolate the kinds of empirical information needed to address the issues and problems of interest in this study. More refined concepts of joblessness are therefore advanced in an economic taxonomy of unemployment types. The methods by which these types of unemployment are measured in this study are indicated.

Unemployment in General

In general, empirical investigations of unemployment are constrained by the concepts which are used by those who collect and report the available data. In the United States, these functions are performed by the Bureau of Labor Statistics (BLS) of the United States Department of Labor. The definition of unemployment used by this agency thus has a bearing on the empirical statements on the problems of unemployment investigated in this study.

In determining the number of unemployed individuals for the purpose of statistical reporting, the Bureau of Labor Statistics uses the following definition:[1]

> The total reported unemployed consists of "all civilians of age 16 years or over, who are not in an institution" who have "actively looked for work in the past 4 weeks, and do not have a job at the same time"; or persons who are not actively seeking work, are currently available for work, and who are "waiting to start a new job within 30 days" or "waiting to be recalled from a layoff".

The unemployment rates which are reported by the Bureau and its subsidiary state agencies are determined by dividing total unemployment by the civilian labor force. The civilian labor force in turn is the sum of the employed and the unemployed.[2]

As a general description of the extent of joblessness among persons who are either looking for work or who are expected to return to a former job within a short period of time, this concept of unemployment is satisfactory. If, however, the problems and public policy issues on unemployment reviewed in Chapter One are to be investigated, some problems with the BLS concept of unemployment need to be recognized and overcome.

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[1]U.S. Department of Labor, Bureau of Labor Statistics, How the Government Measures Unemployment, BLS Report No. 418, (Washington: U.S. Government Printing Office, 1973).

[2]The present concept of unemployment used by the Bureau of Labor Statistics follows the recommendations made by a Presidential Commission in 1962. This commission, which was chaired by Professor R. A. Gordon, recommended as the first rule of order that "each concept should correspond to objectively measurable phenomena . . ." See President's Committee to Appraise Employment and Unemployment Statistics, Measuring Employment and Unemployment, (Washington, D.C.: U.S. Government Printing Office, 1962), pp. 43.

To what extent is unemployment a natural consequence of the unemployed only being temporarily between jobs? If unemployment is only short-term, minimal losses in personal income and output would be expected, and a relative absence of barriers to employment might be reasonably inferred.

The BLS concept does allow for a distinction between individuals who are on temporary layoff and those who are not.[3] Beyond this distinction, however, little information is afforded on the extent to which the unemployed not on temporary layoff are temporarily between jobs.

The BLS concept of unemployment similarly does not allow for an empirical determination of the extent to which education and occupational skill may be barriers to employment confronting the unemployed. As a unitary concept, it is capable of indicating only how many individuals are seeking work, and not how many are having difficulty finding jobs because of educational or skill deficiencies.

A similar problem arises when a lack of aggregate opportunity as a potential barrier to employment confronting the unemployed is of

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[3]Martin Feldstein has empirically examined this distinction and reports that in 1971, manufacturing firms "rehired about 85 percent of the workers they laid off" and, for older men, "62.6 percent of persons experiencing unemployment have no job change" (emphasis added). These figures seem very high, and should be interpreted with caution in an application to Louisiana, since manufacturing has declined in relative importance in terms of employment in the state. Nevertheless, Feldstein's estimates would be encouraging if accurate. See Martin Feldstein, "The Importance of Temporary Layoffs: An Empirical Analysis," Brookings Papers on Economic Activity, (3:1975), pp. 725-45 and Shu-jan Liang, "Manufacturing in Louisiana," Louisiana Business Review, (September, 1975).

empirical interest. There is no indication of the extent to which job seekers are finding it difficult to obtain employment because of a dearth jobs in general.

Since the concept is not capable of satisfactorily addressing these questions for the unemployed in general, the special problems of particular groups in the labor force cannot be isolated. Recognizing these problems in this study requires a determination of the extent to which particular barriers to employment may be present. As this determination cannot be satisfactorily undertaken within the BLS concept, the problems of particular groups remain intractable without further conceptual distinctions.

Knowing the relative extent of these barriers to employment is an important requisite to effective public policy. Except for periods of extremely high joblessness when an absolute lack of job opportunities is likely to be the most significant barrier to employment, the unitary BLS concept of joblessness is an unsatisfactory indicator of the need for public policy alternatives.

The BLS measure of course, is not intended to do all of these things. The purpose of the measure, in the words of the current Commissioner of Labor Statistics, is to "report precisely and objectively the extent of unemployment in the United States."[4] Questions of the

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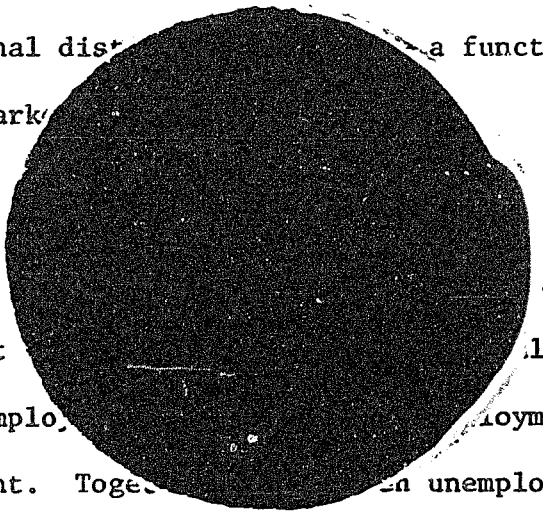
[4]Julius Shiskeu and Robert L. Stein, "Problems in Measuring Unemployment," Monthly Labor Review, (August, 1975), pp. 3-10. A final problem that may be noted is that the BLS concept does not take into account the "hidden unemployed," or those who have stopped seeking work out of discouragement. This is a problem in discovering possible reasons for differences in labor force participation. Labor force

extent of "human resources" represented by the hidden unemployed, and questions of barriers to employment confronting the unemployed, are beyond the scope of this unitary purpose and concept.

Nor can any single concept of unemployment adequately address the problems and issues discussed. It is for this reason that distinctions among particular types of unemployment have traditionally been undertaken by analysts of these problems.[5] Taken together, these traditional dis[illegible]a functional economic taxonomy of the labor mark[illegible]



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participation rates have been below-average in Louisiana when comparisons are drawn with other states. See the author's "Louisiana's Untapped Potential Labor Force," Economic Trends, (Baton Rouge: Public Affairs Research Council of Louisiana, August, 1975).

[5]As was, for example, suggested in the Gordon Report. See also Joint Economic Committee, 87th Congress, Unemployment: Terminology, Measurement, and Analysis, (Washington: U.S. Government Printing Office, 1959).

[6]As Hall notes, "definition derives from theory." The taxonomy to be presented is "functional" in the sense that each type to be distinguished implies an underlying theory of unemployment. See Robert E. Hall, "Why is the Unemployment Rate so High at Full Employment?", Brookings Papers on Economic Activity, (2:1972).

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Table 1 illustrates the conceptual distinctions [illegible] structural, cyclical, and growth-gap types of unemployment. Each type is classified according to the theoretical [illegible] arises, and by anticipated duration.

Traditionally, unemployment classified as frictional [illegible] joblessness attributable to short-term differences [illegible] and supply of, labor. The specific concept of frictional unemployment used in this study includes all those jobless [illegible] of the hidden unemployed, for whom jobs are available [illegible] state of Louisiana at current wage levels.[7]

In general, structural unemployment represents [illegible] joblessness attributable to a persistent mismatching [illegible]

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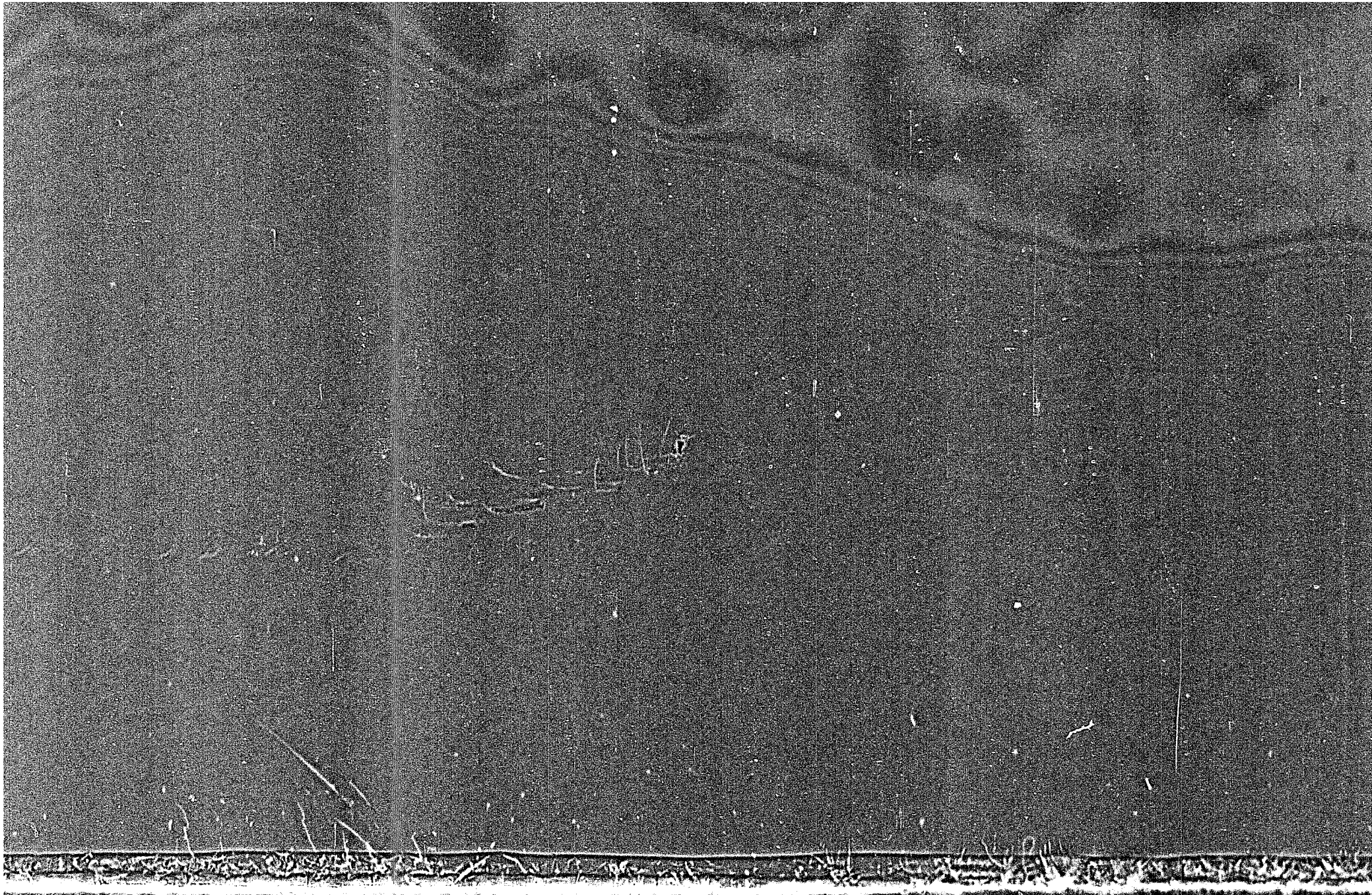
[7]This concept of frictional unemployment has [illegible] underpinnings, the "classical" view of unemployment as [illegible] John Maynard Keynes, or the variant of the Search Theory [illegible] ment as proposed by Armen A. Alchian. The only difference [illegible] the exclusion of the "hidden unemployed"--which Alchian [illegible] ing search"--and (2) the restriction of "current wage rates" [illegible] John Maynard Keynes, The General Theory of Employment, Interest and Money, (New York: MacMillan, 1936), Chapter One and Note [illegible] "Information Costs, Pricing, and Resource Employment," in Edmund Phelps, ed., Microeconomic Foundations of Employment and Inflation Theory, (New York: W. W. Norton and Company, 1970), pp. [illegible]



extent of "human resources" represented by the hidden unemployed, and questions of barriers to employment confronting the unemployed, are beyond the scope of this unitary purpose and concept.

Nor can any single concept of unemployment adequately address the problems and issues discussed. It is for this reason that distinctions among particular types of unemployment have traditionally been undertaken by analysts of these problems.[5] Taken together, these traditional distinctions comprise a functional economic taxonomy of the labor market.[6]

Types of Unemployment

The types of unemployment traditionally distinguished by analysts of unemployment problems include (1) frictional unemployment, (2) structural unemployment, (3) cyclical unemployment, and (4) growth gap unemployment. Together with hidden unemployment these types represent useful extensions of the BLS concept of joblessness. By

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participation rates have been below-average in Louisiana when comparisons are drawn with other states. See the author's "Louisiana's Untapped Potential Labor Force," Economic Trends, (Baton Rouge: Public Affairs Research Council of Louisiana, August, 1975).

[5]As was, for example, suggested in the Gordon Report. See also Joint Economic Committee, 87th Congress, Unemployment: Terminology, Measurement, and Analysis, (Washington: U.S. Government Printing Office, 1959).

[6]As Hall notes, "definition derives from theory." The taxonomy to be presented is "functional" in the sense that each type to be distinguished implies an underlying theory of unemployment. See Robert E. Hall, "Why is the Unemployment Rate so High at Full Employment?", Brookings Papers on Economic Activity, (2:1972).

isolating these types of unemployment, and determining their comparative empirical significance, many of the issues and problems not capable of being addressed by a unitary concept of unemployment are made more manageable.

Table 1 illustrates the conceptual distinctions among frictional, structural, cyclical, and growth-gap types of unemployment. Each type is classified according to the theoretical source from which it arises, and by anticipated duration.

Traditionally, unemployment classified as frictional includes all joblessness attributable to short-term differences in the demand for, and supply of, labor. The specific concept of frictional unemployment used in this study includes all those jobless individuals, exclusive of the hidden unemployed, for whom jobs are available somewhere in the state of Louisiana at current wage levels.[7]

In general, structural unemployment represents longer-lasting joblessness attributable to a persistent mismatching of labor demands

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[7]This concept of frictional unemployment has, as its theoretical underpinnings, the "classical" view of unemployment as described by John Maynard Keynes, or the variant of the Search Theory of Unemployment as proposed by Armen A. Alchian. The only differences are (1) the exclusion of the "hidden unemployed"--which Alchian calls "waiting search"--and (2) the restriction of "current wage rates". See John Maynard Keynes, The General Theory of Employment, Interest, and Money, (New York: MacMillan, 1936), Chapter One and Armen A. Alchian, "Information Costs, Pricing, and Resource Employment," in Edmund Phelps, ed., Microeconomic Foundations of Employment and Inflation Theory, (New York: W. W. Norton and Company, 1970), pp. 27-52.

TABLE 2-1
TAXONOMY OF UNEMPLOYMENT
BY SOURCE AND DURATION

SOURCE	DURATION	
	SHORT-TERM	LONG-TERM
INADEQUATE AGGREGATE DEMAND	Cyclical Unemployment	Growth-Gap Unemployment
LABOR MARKET MALADJUSTMENT	Frictional Unemployment	Structural Unemployment

SOURCE: Lloyd G. Reynolds, Labor Economics and Labor Relations, 5th edition, (Englewood Cliffs, N.J.: Prentice Hall, 1970), pp. 122. See also Eleanor Gilpatrick, "On the Classification of Unemployment: A View of the Structural-Inadequate Demand Debate," Industrial and Labor Relations Review, (January, 1966) and her Structural Unemployment and Aggregate Demand, (Baltimore, Md.: Johns Hopkins University Press, 1966).

and supplies. Some barriers to employment which have received empirical attention as potential factors in such a mismatch are geographical immobility, minimum wage floors, information deficiencies, economic discrimination, and a lack of education and skill. Of these, the potential structural barriers of education and skill are empirically examined in the present study.[8] Thus, for the purposes of this investigation, structural unemployment represents joblessness resulting from a persistant mismatching of specific labor demands and supplies in Louisiana where there is a limited transferability of skills among occupations, or a limited substitutability of skills within an occupation. The remaining potential barriers as factors in Louisiana unemployment are left to past and future research efforts.[9]

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[8]On economic discrimination in Louisiana, see John H. Carson, The Economics of Racial Discrimination in Louisiana: 1950-1973, Occasional Paper No. 20, (Division of Research, College of Business Administration, Louisiana State University, 1974). On potential intrastate immobility, see Geneva B. Carroll, An Analysis of the Unemployed in Louisiana, (Baton Rouge: Louisiana Office of State Planning, 1975). On unions in Louisiana, see T. R. Shapiro and W. D. Wagoner, Provisions of Trade Union Agreements in Louisiana, Research Study No. 20, (New Orleans Division of Business and Economic Research, University of New Orleans, 1975).

[9]Ibid. This concept of structural unemployment has as its underlying theoretical bases the Keynesian "bottleneck" view of unemployment at high levels of employment, the Killingsworth structuralist view of unemployment, or the variant of the search theory of unemployment as suggested by Charles Holt. See John Maynard Keynes, op. cit. pp. 215, Charles Killingsworth, "Unemployment: A Structuralist View," in Kenneth G. Elzinga, ed., Economics: A Reader, 2nd ed., (New York: Harper and Row, 1975), pp. 211-215, and Charles Holt, "How Can the Phillips Curve be Moved to Reduce both Inflation and Unemployment?" in Phelps, ed., op. cit., pp. 224-256.

The frictional and structural types of unemployment share a common microeconomic perspective. Cyclical and growth gap types of unemployment, on the other hand, share a macroeconomic orientation.

Traditionally, cyclical unemployment includes all joblessness attributable to fluctuations in business activity, and which results from a level of total spending which is not large enough to employ all job seekers. When sustained cyclical unemployment is viewed over the long run by the amount of aggregate income lost as a result of this type of unemployment, the term "growth gap" unemployment is used. In general, however, the underlying concept is the same for both types of unemployment.[10]

The specific concept of cyclical unemployment used in the present study is all joblessness, exclusive of hidden unemployment, which is attributable to an absolute shortage of job openings within the state at current wage levels.[11] In contrast to frictional and structural types, cyclical unemployment represents those unemployed individuals who otherwise might have obtained employment within the state but for this one particular barrier.

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[10]Hence, the title of this study excludes "growth gap".

[11]This concept of cyclical unemployment has as its underlying theoretical base the "involuntary" view of unemployment suggested by John Maynard Keynes, or the variant of the search theory of unemployment as set forth by Charles Holt. See Keynes, op. cit., pp. 15, and Charles Holt and M. H. David, "The Concept of Vacancies in a Dynamic Theory of the Labor Market," in The Measurement and Interpretation of Job Vacancies, (New York: National Bureau of Economic Research, 1966), pp. 73-141. Both theories place significance on the stocks of job vacancies. Both also discuss the nature of these vacancies.

Measurement of the Unemployment Types

The questions of the relative importance of frictional, structural and cyclical types of unemployment as potential barriers to employment in Louisiana is empirically examined in this study. There are two established methodological approaches which are used in this empirical examination. These two approaches may be identified simply as the indirect and the direct.

The Indirect Measures

Is there evidence of circumstances which could have resulted in a particular type of unemployment? This is the general question which the indirect measures of unemployment types seek to answer.

Indirect evidence on the possible extent of frictional unemployment in Louisiana is provided in an examination of data which may indicate a condition of short-term differences in labor demands and supplies. Two kinds of empirical information are examined for this purpose.

First, data on what have come to be regarded as measurable "components of frictional unemployment is assembled and analyzed. These components include "voluntary unemployment" and seasonal unemployment.[12]

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[12]See Eleanor Gilpatrick, Structural Unemployment and Aggregate Demand, (Baltimore: Johns Hopkins University Press, 1966), Chapter Three.

"Voluntary unemployment" refers to individuals who are dismissed for misconduct or nonperformance of duties, individuals who quit to get better jobs, and individuals who are waiting to take the "right job". Assuming the absence of structural or cyclical impediments to employment, a comparatively high degree of voluntary unemployment would suggest a comparatively high degree of frictional unemployment.

Seasonal unemployment refers to predictable patterns in unemployment which occurs over the course of a year's time, year in and year out. Such patterns are known to exist in certain sectors of the economy, such as in construction and agriculture, and as a result of temporary changes in the labor force in the spring and fall as the school term ends and begins. As such unemployment is short-lived, it is usually subsumed under the frictional rubric.[13]

A second established indirect measures of frictional unemployment used in this study involves the duration of unemployment. If unemployment in the state is largely attributable to individuals who are only between jobs which exist, and for which they are qualified, then the average duration of unemployment would be expected to be relatively short. On the other hand, if structural or cyclical impediments to employment exist, then the average duration of unemployment would be longer. A study of the extent to which the unemployed experience

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[13]As by, for example, Gilpatrick, op. cit., or Albert Rees, "The Meaning and Measurement of Full Employment," in The Measurement and Behavior of Unemployment, (New York: National Bureau of Economic Research, 1957), pp. 13.

primarily "short-term" unemployment therefore provides a useful indirect measure of the relative importance of frictional unemployment relative to other types of unemployment.

Indirect evidence on the possible extent of structural unemployment in Louisiana is provided in an examination of data which may indicate the extent to which joblessness is a condition of persistent disparities in specific labor demands and supplies due to skill and educational deficiencies. There are two kinds of statistical information which are examined for this purpose.

First, an examination of historical and expected trends in the occupational composition of unemployment in Louisiana is undertaken. If structural impediments to employment are important barriers confronting the unemployed, it would have to be because skills which were formerly marketable are no longer in demand within the state. Further, as a longer period of time is required for the labor force to recognize and adapt to these changes, the potential for longer-lasting unemployment would be indicated.[14]

As a second indirect measure of structural unemployment within the state, an examination of long-term unemployment is undertaken. If the unemployed are confronted by job openings which are largely out of reach due to high educational or skill requirements, then a comparatively high average duration of unemployment would be

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[14]Gilpatrick, op. cit., Chapter Four.

expected.[15] This lengthening of the duration of unemployment might be expected as a result of unemployed workers searching among the meager and declining number of unskilled jobs if structural barriers were present.

Indirect evidence on the possible extent of cyclical unemployment in Louisiana is provided in an examination which may indicate the extent to which an absolute shortage of jobs represents a barrier to employment confronting the unemployed. An established indirect measure of cyclical unemployment is the proportion of total unemployment attributable to job losers.[16] This measure is applied using the available data in Louisiana.

Direct Measures

By providing evidence on circumstances which could have resulted in a particular type of unemployment, the set of indirect measures

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[15]Barbara Bergman, "Alternative Measures of Structural Unemployment," in Arthur Ross, ed., Employment Policy and the Labor Market, (Berkeley: University of California Press, 1965). There are, of course, many other factors which could conceivably lengthen the duration of unemployment. Martin Feldstein has argued that the unemployment compensation system has resulted in unnecessarily high unemployment due to this lengthening effect. Stephen T. Marston presents compelling empirical evidence discounting this hypothesis. See Martin Feldstein, Lowering the Permanent Rate of Unemployment, A Study Prepared for the Use of the Joint Economic Committee, 93 Congress 1 Session (1973), and Stephen T. Marston, "The Impact of Unemployment Insurance on Job Search," Brookings Papers on Economic Activity (1:1975), pp. 13-48.

[16]Geoffrey H. Moore, Recession-Related Unemployment, (Washington: American Enterprise Institute for Public Policy, 1975). There is an obvious difficulty in the interpretation of this measure. "Job losers" could just as easily face structural as cyclical barriers. This is a problem common to most of the indirect measures, as will become immediately clear.

just described can establish the necessary preconditions for specific barriers to employment. There are, however, two related problems with the indirect measures. These problems suggest a need to assess the relative importance of the particular types of unemployment in comparative analyses of job vacancies with the unemployed.

First, it is clear that the indirect measures are essentially retrospective, or "backward looking". In each case, the indirect measures tell what has happened up to a particular point in time. Because of this, the indirect measures can only provide evidence on how the jobless <u>became</u> unemployed, and not evidence on the likely strengths of particular <u>barriers</u> to employment confronting the unemployed.

This first problem is related to a second difficulty. The indirect measures fail to simultaneously consider all types of unemployment. The indirect measures of frictional unemployment fail to take into account the possibility that an individual unemployed for "voluntary" or any of the other reasons may have faced structural or cyclical barriers to employment. Similar difficulties obtain for the indirect measures of structural and cyclical types of unemployment. In general, there is no guarantee that the barriers to employment implicit in the indirect measures are accurate representations of the relative significance of frictional, structural, and cyclical factors as barriers to employment.

These related problems may be summarized by simply noting that the indirect measures provide the necessary, but not sufficient, conditions for the different factors as barriers to employment. It

is for this reason that some direct tests, based on comparisons of the unemployed and job vacancies, have been recognized as being required for a sufficient empirical understanding of the different types of unemployment as barriers to employment.[17]

The established direct measures of frictional, structural, and cyclical types of unemployment can be derived from general specifications of labor demand and labor supply. The use of symbols facilitates this derivation.[18]

The demand for labor (D_L) may be expressed as the sum of employment (N) and the number of job vacancies (V). For the ith occupation, the demand for labor is thus:

$$D_{Li} = N_i + V_i \qquad (1)$$

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[17]The Gordon Committee, for example, strongly recommended the establishment of job vacancy surveys to be conducted by the Bureau of Labor Statistics. This has been done, but only in manufacturing and for the U.S. as a whole. Other studies finding a need for vacancy comparisons include Gilpatrick, op. cit., Arthur M. Ross, "Theory and Measurement of Labor Shortages" in Frederick H. Harbison and Joseph D. Mooney, eds., Critical Issues in Employment Policy, (Princeton: Princeton University Press, 1966, pp. 23; the essays in the National Bureau of Economic Research, The Measurement and Interpretation of Job Vacancies, (Princeton: Princeton University Press, 1966); Leo Fishman and Betty Fishman, Employment, Unemployment, and Economic Growth, (New York: Thomas Y. Crowell; 1969), pp. 96-98; and Richard Perlman, Labor Theory, (New York: John Wiley and Sons, 1969), Chapter Eight.

[18]What follows is a derivation of measures suggested by Richard Perlman from specification of labor demand and supply suggested by Richard Lipsey. See Richard Perlman, Labor Tehory, (New York: John Wiley and Sons, 1969) and Richard Lipsey, "Structural and Deficient-Demand Unemployment Reconsidered," in Arthur M. Ross, ed., Employment Policy and the Labor Market, (Berkeley: University of California Press, 1965).

The supply of labor may be approximated as the sum of employment and unemployment (U).[19] For the ith occupation, the supply of labor is thus:

$$S_{Li} = N_i + U_i \tag{2}$$

The extent of excess demand in the jth labor surplus occupation is derived by subtracting (2) from (1) to yield:

$$D_{Lj} - S_{Lj} = V_j - U_j \tag{3}$$

for all m of the specific occupations where V_j exceeds U_j.

The extent of excess supply in the kth labor surplus occupation is derived by subtracting (1) from (2) to yield:

$$S_{Lk} - D_{Lk} = U_k - V_k \tag{4}$$

for all n of the specific occupations where U_k exceeds V_k.

By definition, total frictional unemployment represents all those unemployed individuals for whom job openings suited to their skills exist.[20] In an occupation exhibiting either no labor surplus or in an occupation exhibiting labor shortage, equation (3) holds and the maximum extent of frictional unemployment is equal to U_j. In an occupation exhibiting labor surplus, equation (4) holds and frictional

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[19]This specification must be considered an approximation, as it neglects the potential labor supply represented by the "hidden unemployed".

[20]*Supra*.

unemployment is given by V_k. If there are m labor shortage occupations, and n labor surplus occupations, the maximum extent of frictional unemployment (U_F) can therefore be expressed as:

$$U_F = \sum_{j=1}^{m} V_j + \sum_{k=1}^{n} U_k \qquad (5)$$

Total structural unemployment is, by definition, all those unemployed individuals who would have found it necessary and possible to secure employment without displacing the currently employed or frictionally unemployed.[21]

The total numbers of unemployed who would have found it <u>necessary</u> to change occupations in order to secure employment is given by equation (4), summed over the n labor surplus occupations:

$$\sum_{k=1}^{n} (S_{Lk} - D_{Lk}) = \sum_{k=1}^{n} (U_k - V_k) \qquad (6)$$

The total numbers of unemployed who would have found it <u>possible</u> to change occupations is given by equation (3), summed over the m labor shortage occupations:

$$\sum_{j=1}^{m} (D_{Lj} - S_{Lj}) = \sum_{j=1}^{m} (V_j - U_j) \qquad (7)$$

If the total extent of labor shortage exceeds the total extent of labor surplus, then it is possible for all of the unemployed, surplus labor represented by equation (6) to change occupations without

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[21] <u>Ibid</u>. The restriction of "without displacing . . ." is required if total unemployment is to be reduced by diminishing structural unemployment.

displacing either the currently employed or the frictionally unemployed. Under these circumstances, the maximum extent of structural unemployment (U_S) is equal to the right-hand side of equation (6):

$$U_S = \sum_{k=1}^{n} (U_k - V_k) \quad \Big| \quad \sum_{j=1}^{m} (V_j - U_j) > \sum_{k=1}^{n} (U_k - V_k) \qquad (8)$$

Alternatively, if the total extent of unemployed surplus labor is greater than the total number of job openings, then some of the surplus labor would have found a change in occupations impossible without displacing currently employed or frictionally unemployed individuals. Under those circumstances, the maximum extent of structural unemployment is given by the right hand side of equation (7):

$$U_S = \sum_{j=1}^{m} (V_j - U_j) \quad \Big| \quad \sum_{j=1}^{m} (V_j - U_j) > \sum_{k=1}^{n} (U_k - V_k) \qquad (9)$$

The remainder of the unemployed surplus labor, not accounted for by (9), are by definition cyclically unemployed since they could not have secured employment in any occupation.[22] The total extent of cyclical unemployment (U_C) can be derived by subtracting equation (9) from either equation (8) or equation (6) to yield:

$$U_C = \sum_{k=1}^{n} (U_k - V_k) - \sum_{j=1}^{m} (V_j - U_j) \quad \Big| \quad \sum_{k=1}^{n} (U_k - V_k) > \sum_{j=1}^{m} (V_j - U_j) \qquad (10)$$

[22] Ibid.

The total level of seasonally-adjusted unemployment is given by the sum of equations (5), (9), and (10) if the total volume of labor surplus exceeds the total volume of labor shortage. Alternatively, if the total volume of labor surplus falls short of the total volume of labor shortage, then the total level of seasonally-adjusted unemployment is given by the sum of equations (5) and (8).

Equations (5), (8), or (9), and (10) represent direct measures of frictional, structural, and cyclical factors in overall unemployment. These direct measures each provide an estimate of the quantitative magnitude of a particular type of unemployment after taking the magnitude of the other two factors into account.

If an unemployed individual faces only frictional barriers to employment, then skill or a lack of job openings at current wage rates cannot be the cause of unemployment. This suggests that, at any point in time, the maximum number of frictionally unemployed may be determined as the number of individuals who could have found employment in their reported occupation somewhere in the state. Only then would an absence of structural and cyclical barriers to employment be indicated.

This direct test for frictional unemployment is undertaken in this study. The maximum extent of frictional unemployment is determined as the number of individuals who could have obtained

employment at current wage rates womewhere in the state as of November, 1973.[23]

If an unemployed individual faces only structural barriers to employment, then finding a job in an occupation for which skills are possessed, or a lack of jobs in general, cannot be the cause of unemployment. This suggests that, at any point in time, the maximum extent of structural unemployment may be determined as the number of individuals who could not have found employment in their own occupation, but who were confronted by job openings in other occupations.

A natural question arises, however. How distinct from the occupational skills which are known to be possessed by the unemployed must the skill requirements of existing job openings be before an unemployed individual is classified as "structurally" unemployed as opposed to "frictionally" unemployed? In other words, what is the precise extent of the "limited transferability and limited substitutability of skills" that is the distinguishing feature of the concept of structural unemployment?

As a practical way of addressing this problem, this study compares job vacancies and the unemployed in as fine a detail as the data allow. The detail afforded is substantial, for the available data is classified according to the occupational scheme found in the

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[23]The data only allow comparisons for this one year. Nevertheless, the 5.8 percent rate of unemployment existing at the time the data was collected is typical of recent levels of unemployment in Louisiana. See Chapter One, footnote 6, supra.

Dictionary of Occupational Titles (DOT).[24] These detailed comparisons are then used to derive estimates of the maximum extent of frictional and structural types of unemployment.

The determination of the maximum extent of frictional and structural unemployment will reveal the extent to which unemployed individuals might have found employment in their reported DOT occupation somewhere in the state. In order to determine whether education and skill are barriers to employment, further analysis are undertaken.

A useful feature of the DOT occupational classification scheme is that it provides ratings for different occupations in terms of general educational development (GED) and specific vocational preparation (SVP). The GED ratings scale different occupations according to "reasoning, mathematics and language" and attempt to determine "what basic skills people are supposed to acquire as a result of general education" and "the role of these skills in jobs".[25] The SVP ratings scale different occupations in terms of training time beyond general education.[26]

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[24]U.S. Department of Labor, Bureau of Employment Security, Dictionary of Occupational Titles, (Washington: U.S. Government Printing Office, Vols. 1 and 2, 1965).

[25]Sidney A. Fine, "The Use of the Dictionary of Occupational Titles as a Source of Estimates of Educational and Training Requirements," Journal of Human Resources, (Summer, 1968), pp. 363-375.

[26]Ibid. The different kinds of training taken into account in the SVP scale include vocational education, apprentice training, in-plant training (training given by employer in form of organized classroom study), on-the-job training, and "essential experience in other jobs". The latter includes "serving in less responsible jobs which

These features of the DOT scheme are utilized in this study. Labor surpluses and labor shortages found in comparisons of job vacancies and the unemployed by the detailed DOT occupations will be compared with the relative number of years of formal education associated with that occupation, and the specific vocational preparation estimated to be necessary for employment in that occupation. If labor shortages are found to be concentrated in occupations rated high in terms of these ratings, and excess labor supplies are found to be in occupations rated low in terms of the ratings, then structural barriers to employment are indicated. These comparisons would therefore provide an indication of the extent to which education and occupational skill are barriers to employment which are confronting the unemployed who would have found it necessary to secure employment somewhere in the state.

If an unemployed individual faces only cyclical barriers to unemployment, then finding a job in an occupation for which skills are possessed or inadequate qualifications for the existing job openings cannot be the causes of unemployment. This suggests that, at any point in time, the maximum extent of cyclical unemployment may be determined as the number of individuals who could not have found employment in any occupation at current wage rates.

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lead to the higher grade job or serving in other jobs which qualify"- an important characteristic of what some have termed "internal labor markets".

This direct test for cyclical unemployment is undertaken in this study. The maximum extent of cyclical unemployment is determined as the number of individuals who could not have obtained employment somewhere in the state at current wage rates as of November, 1973.

The direct comparisons, and the relative estimates of frictional, structural, and cyclical types of unemployment derived from them, must be considered as maximum values only. There is no guarantee that the unemployed would have been interested in, or would have accepted the employment possibilities represented by the job vacancies compared with them. Similarly, there is no guarantee that employers would have accepted the unemployed as employees. The only statement allowed by the comparisons will be an assessment of the extent to which the unemployed could have been confronted by the specific barriers to employment implicit in the problems and issues of interest in this study. The measurable concepts therefore represent useful extensions of the basic BLS concept of unemployment.

On the positive side, there is a definite advantage of the direct approach. Most empirical investigations on the questions of interest have been limited to the indirect measures by limited data. The direct approach has been made possible for this study by two recent advances in statistical knowledge of job vacancies and the skills of the unemployed in Louisiana.

CHAPTER THREE

THE DATA

This chapter describes and evaluates the data sets on job vacancies and unemployment which are later used to determine the relative strengths of frictional, structural, and cyclical factors in Louisiana unemployment. Descriptions of the sources, the collection procedures followed by these sources, and other important aspects of the data sets are provided. An evaluation of the data sets, conducted according to standard procedures, concludes the chapter.

The Job Vacancy Data

Detailed data on job vacancies has seldom been available to labor market researchers.[1] This paucity of information has been particularly acute where information was sought on job openings classified by occupational skill requirements. A recent,

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[1]The Bureau of Labor Statistics provides information on job vacancies in issues of the Monthly Labor Review. This data is, however, limited to openings in manufacturing only, and then only to the extent of total vacancies for the national economy. Studies of want ads in newspapers have been conducted under the auspices of the National Bureau of Economic Research, the National Industrial Conference Board, and the Manpower Administration. These studies, seeking greater detail by using want ads as proxies for vacancies, have in general been inconclusive. For a discussion, see John Walsh, Miriam Johnson, and Marged Sugarman, Help Wanted: Case Studies of Classified Ads, (Salt Lake City: Olympus Publishing Company, 1975).

comprehensive survey conducted in the state of Louisiana represents a significant addition to statistical information on job vacancies by overcoming this difficulty.

On January 24, 1973, the Louisiana Occupational Training Information System was formed by executive order of Governor Edwin Edwards. Members of this system, which is known under the acronym of LOTIS, include a consortium of representatives from Louisiana State University, Louisiana Tech University, and the University of New Orleans. The function of the LOTIS project is to provide periodic information on the "present and probably future occupational demands, as well as the probable supply of labor which will be available during each planning period" of the newly-expanded system of vocational-technical education in the state.[2] In November of 1973 the LOTIS consortium conducted a sample survey of employers covered by the Louisiana employment security statutes, federal agencies hiring civilians, and local governments in order to fulfill this objective in the initial year.

The LOTIS sample for covered employers was based on a non-proportional stratified random sampling procedure.[3] An overall

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[2]Louisiana Occupational Training Information System, Systems Overview, (Baton Rouge: Louisiana Occupational Training Information System, 1975). Act 209 of the 1973 Louisiana Legislature provided an initial $55 million to construct and equip 47 new or expanded post-secondary, vocational-technical training institutions. See Louisiana Division of Administration, Louisiana Enters a New Era in Vocational-Technical Education, (New Orleans: Comprehensive Planning Associates and Cimini and Meric Associates, 1975).

[3]A thorough description of this sampling technique may be found in Taro Yamane, Elementary Sampling Theory, (Englewood Cliffs: Prentice Hall, 1967), pp. 102-108, 113-118, 129-134, and pp. 143.

sample size in excess of 8,000 was allocated among 1,456 strata as determined by 26 Standard Industrial Classification (SIC) codes, 8 geographical State Planning Districts, and 7 employee size groups. The resulting sample included approximately 16 percent of all firms covered by the Louisiana employment security statutes. These firms together accounted for approximately 70 percent of all covered employment in the state.

The covered employment sample was supplemented with information from federal and local governmental employers.[4] The sample design for federal employers consisted of a census of "all federal agencies with offices within the state".[5] The design for parish and municipal governmental units included all "local governmental units in a randomly-selected group of urban and rural parishes."[6]

The LOTIS survey was accomplished in a mailing of questionnaries. Ten questionnaire types were designed and used. These types consisted of questionnaires relevant to construction; durable goods; finance, insurance, and real estate; government; medical and health services;

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[4]State governmental employees are covered by the Louisiana employment security statutes and therefore their employers were captured in the covered employment sample.

[5]Louisiana Occupational Training Information System, Short-Range Manpower Demand, (Baton Rouge: Louisiana Occupational Training Information System, 1974).

[6]Ibid., pp. 6.

mining; nondurable goods; public utilities; services, except medicine and health; and trade. The appropriate questionnaire was sent to specific employers selected at random according to the SIC code.[7]

Approximately 80 percent of those surveyed in the LOTIS program returned completed questionnaires. Upon receipt of the returned questionnaires, the covered employment and municipal government sample values were expanded to represent population values. This expansion was accomplished in an application of standard ratio-estimation techniques using population employment estimates provided by the Louisiana Department of Employment Security.[8]

A central question posed in the LOTIS survey was an inquiry as to the number of "open positions which are to be filled within the year". These current vacancies were classified according to the occupational classification scheme found in the Dictionary of Occupational Titles (DOT) developed and used by the United States Employment Service.[9]

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[7]Specific employers selected from particular strata in the covered employment sample were selected by a random number generator applied to a list of employers provided by the Louisiana Department of Employment Security. The procedure is described in Systems Overview, op. cit., pp. 19.

[8]A thorough description of the ratio-estimation technique may be found in Yamane, op. cit., Chapter 13. The specific application of the technique in the LOTIS program used estimates of covered and municipal employment for Louisiana as the base values. This application is described in complete detail in Short-Range Manpower Demand, op. cit., pp. 18-30.

[9]U.S. Department of Labor, Bureau of Employment Security, Dictionary of Occupational Titles, (Washington: U.S. Government Printing Office, Vols. 1 and 2, 1965).

Following estimation of population values, the LOTIS survey data were coded and placed on magnetic computer tape. This tape became the source for the job vacancy data used in the present study.[10]

The Unemployment Data

While data on job vacancies by occupation has been virtually nonexistent, data on unemployment by occupation has been meager at best.[11] This has been particularly true at state and local levels. There have, however, been recent improvements in the quantity and quality of unemployment data at subnational levels in general, and within the state of Louisiana in particular.

In general, data on employment and unemployment at state geopolitical levels is estimated and reported according to procedures established by the Bureau of Labor Statistics of the U.S. Department of Labor. Specifically, employment security departments in the individual states are responsible for estimates based on procedures set forth by the Manpower Administration (previously the Bureau of Employment Security) of the Department.

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[10]The author is grateful to Dr. Fred Wrighton for making this tape available, and to Professors Lamar B. Jones and Loren C. Scott for assisting in its procurement.

[11]Occupational detail on unemployment is available from the Bureau of Labor Statistics in annual issues of the Manpower Report of the President. The detail afforded is slight, however; the classification scheme only distinguishes among 12 broad categories.

True levels of employment and unemployment would be yielded by a household survey of individuals. The problem is that household survey data on individual labor force status is not available except at the time of the Decennial Census. This means that actual figures are only available at ten year intervals. If information on labor force status is desired for intercensal years, estimates must be undertaken.

It is the ultimate responsibility of individual state employment security agencies to provide these intercensal estimates. In order to estimate total employment and unemployment, employment security departments begin with payroll employment counts and unemployment counts in industries covered by the individual state's employment security laws. These covered counts of employment and unemployment systematically exclude particular individuals from consideration in the total counts.[12] It is the responsibility of the state agencies to quantify these exclusions and to adjust the covered employment and unemployment figures by including the excluded.

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[12]Insured unemployment does not include all of the unemployed because of limited coverage in state employment security laws. Some of the unemployed who are otherwise eligible delay in filing claims; other eligible unemployed never file claims. Some insured unemployed are not covered by the official unemployment concept because they had some earnings in the reference week in which they were counted. Other actual unemployed are either ineligible or have exhausted benefit rights. Similarly, payroll employment does not represent total actual employment because of some systematic exclusions arising from the limited extent of employment security coverage. Farm workers, the self-employed, domestic workers, and unpaid family workers are the major exclusions when only covered employment is considered.

Prior to 1973, the estimation of total employment and total unemployment was undertaken through an application of statistical relationships found at the time of the previous Census and a variety of special studies of omitted groups conducted by individual state employment security agencies.[13] With the passage of the Comprehensive Employment and Training Act in 1973, however, a need to standardize procedures used within individual states became apparent.[14]

Currently, the standard technique for estimating total employment and unemployment involves the use of both the 1970 Census and the Current Population Survey (CPS).[15] The ratio of covered employment to total employment and the ratio of covered unemployment to total unemployment gleaned from the national CPS are used to estimate the extent to which payroll employment captures actual employment and the extent to which insured unemployment captures total unemployment.

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[13]U.S. Department of Labor, Bureau of Labor Statistics, Handbook of Methods for Surveys and Studies, BLS Bulletin No. 1458, (Washington: U.S. Government Printing Office, 1967). A special study of an "omitted group" published annually by the Louisiana Department of Employment Security is its Rural Manpower Report.

[14]U.S. Department of Labor, Bureau of Labor Statistics, New Procedures for Estimating Unemployment in States and Local Areas, BLS Report No. 432, (Washington: U.S. Government Printing Office, 1974).

[15]The Current Population Survey is conducted monthly by the Bureau of the Census for the Department of Labor. Over 47,000 households are sampled throughout the United States. It should be noted that a "rotation bias" has been found in the survey in that households appear to report higher unemployment during initial weeks in the survey. The reasons for this bias, and its quantitative impact on overall unemployment, are indeterminate as yet.

The extent to which adjustment is necessary in either case may then be determined as one minus these percentages. In the case of unemployment, the Bureau of Labor Statistics reports that "in 95 cases out of 100 the 'true' unemployment rate will fall within two standard errors of the CPS estimate" and "in 5 cases out of 100 the difference between the 'true' unemployment rate and the CPS estimate can be greater than two standard errors". In the latter event, the standard procedure is to adjust such "outliers" by benchmarking them to the 1970 Census.[16] The result is a procedure which combines current information from the national CPS with more localized but dated information from the Census.

Computer programs for the application of CPS data to individual states are available from the Bureau of Labor Statistics for use by state employment security departments. Where individual state agencies do not wish to adjust and augment covered employment and unemployment using the programs on these tapes, the regional office of the Bureau of Labor Statistics will handle the problem.

In Louisiana, a conversion to the new CPS/Census method went into effect in February of 1975. As such, the state "joined 26 other states for which labor force, total employment, and total unemployment are presently benchmarked to estimates drawn directly

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[16]Hyman B. Kaitz, Local Area Estimates of Unemployment Levels and Rates, (Alexandria: CSR Associates for the Department of Economic and Community Development of the State of Maryland, 1973).

from the national Current Population Survey".[17] The figures generated by the new method attempt to replicate the estimates that would be provided by a complete household census in Louisiana.

While improvements have been made in unemployment data for individual states, some problems remain. Not the least of these problems is a dearth of information on the occupational skills possessed by the unemployed. This problem is of paramount significance for the present study. In order to make the comparisons necessary to empirically assess the relative strengths of frictional, structural, and cyclical factors in Louisiana unemployment it is necessary to disaggregate total unemployment in November of 1973 by DOT occupational skill.

Fortunately, this problem is resolvable due to an independent statewide survey undertaken concurrently with the LOTIS survey. This circumstance made the present study possible.

In November of 1973, a detailed survey of the characteristics of the unemployed making application to public and private employment agencies was undertaken by the Louisiana Department of Labor and the Louisiana Department of Employment Security on behalf of the Louisiana Office of State Planning. This project, which was financed in part by a grant from the United States Department of Housing and Urban

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[17]Louisiana Department of Employment Security, Louisiana Labor Force Summary, (Baton Rouge: February, 1975).

Development, was designed to "provide a more complete profile of the unemployed" in Louisiana.[18]

The specific aims of the survey were to augment descriptive data published by the state's employment security department by providing information on ". . . the length of time the unemployed have been out of work; the number of dependent persons for whom the unemployed is responsible; the length of time the unemployed have been looking for work, and the vertical and horizontal mobility of the unemployed."[19] More important for the purposes of the present study was the project's goal to provide "more detailed information on the skills of unemployed workers" for "successful administration of the retraining provisions of the Manpower Development and Training programs".[20]

The unemployment survey was accomplished through the use of mailed questionnaires.[21] Questionnaires were sent to, and administered by, 23 area unemployment offices under the supervision of the

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[18]Some results of this study were published in Geneva B. Carroll, An Analysis of the Unemployed in Louisiana, (Baton Rouge: Louisiana Office of State Planning, 1975). The project updated and expanded an earlier study undertaken by the Council for a Better Louisiana, the results of which were published as Louisiana's Unemployed, (Baton Rouge: Council for a Better Louisiana, Vol. 1: September, 1964; Vol. 2: October, 1964).

[19]Carroll, op. cit., pp. 6.

[20]Ibid.

[21]A copy of this questionnaire has been published in Carroll, op. cit., Appendix A.

Louisiana Department of Employment Security. The Louisiana Department of Labor supervised the mailing of questionnaires to be completed by applicants to 89 private employment agencies throughout the state. A total of 13,266 completed questionnaires from both sources were returned to the Louisiana Office of State Planning. After deleting 2,398 completed questionnaires from respondents who were employed either full time or part time during the survey, the occupational skills reported by the unemployed were coded according to the DOT classification scheme and placed on computer tape. This computer tape became the source for the occupational unemployment data used in the present study.[22]

In order to make the unemployment data comparable with the LOTIS job vacancy data, it was necessary to expand the former to reflect population values for unemployment as reported by the Louisiana Department of Employment Security as of November, 1973. This expansion was undertaken by the present author. The expansion technique followed was to use the sample proportions of unemployment in a particular occupation to total sample unemployment as estimates of population proportions. These estimates were then multiplied by

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[22]The author is grateful to Dr. Geneva B. Carroll for making this tape, and much ancillary information necessary to its interpretation, available; and to Professor Lamar B. Jones for calling the existence of the data to his attention.

a seasonally-adjusted figure for total unemployment as of November, 1973.[23] The results are the estimates of total unemployment in individual DOT occupations. This is the unemployment data used in the present study in comparisons with job vacancies from the LOTIS survey.

Some Problems with the Data

Since both of the data sets which are used in this study represent new attempts to provide greater descriptive detail on the skill requirements of existing job openings and the occupational skills possessed by the unemployed, it is useful to judge both sets according to some standard evaluative criteria. This section undertakes that task. Both data sets will be evaluated in terms of the estimators used and in terms of the accuracy of the resulting estimates.

In general, a statistical estimator may be described as a tool which allows inferences of population magnitudes to be drawn from sample values. The four standard criteria for evaluating statistical estimators are bias, consistancy, efficiency, and sufficiency.

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[23] Let p_i represent the proportion of total unemployment in the sample falling into the ith DOT occupation. Let U_T represent total unemployment as of November, 1973 as reported by the Department of Employment Security. Then an estimate of total unemployment in the ith occupation is $(p_i)U_T$. This is the same as assuming that the distribution of skills among the unemployed not in the sample is identical to the skills of the unemployed in the sample. This is a highly questionable assumption in the cases of farm workers and domestics. See infra.

An unbiased estimator is one that exhibits the characteristic that the mean, or expected value of sample estimates drawn from repeated sampling equals the true population value. An estimator is said to be unbiased when the expected value of the sample statistics is the population value. Conversely, when the expected value of the sample statistics does not equal the population value, the particular estimation procedure is said to be biased.[24] The ratio estimator used in the LOTIS project to expand job vacancies to estimates of population values is known to be a biased estimator under this definition. While ratio estimators are known to result in bias, their redeeming feature is that they are capable of yielding more accurate estimates of population values in terms of sampling error.[25] Given the sample size and response rate of the LOTIS survey, this is undoubtedly the case with the job vacancy data. The procedure used in this study to estimate population proportions and total unemployment is known to be an unbiased procedure. According to the Central Limit Theorem, the standard errors may be assumed to be normally distributed given the sample size of the unemployment

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[24] See Yamane, op. cit., for a full discussion.

[25] Ibid., pp. 343. It is known that as the sample size of a ratio estimator increases k times, the bias of the estimate will decrease by 1/k while the standard error will decrease by the reciprocal of the square root of k. As Yamane notes, this means that "for moderately large samples, the bias may be small relative to the standard error, and may even be negligible".

survey.[26] These considerations suggest that the problems of bias resulting from selection of estimation techniques may, in both cases, be ignored.

A consistent estimator is one that exhibits the characteristic that the distribution of sample statistics converges on the true population value as the sample size becomes large. The methods of estimation used to generate both data sets used in this study are known to be consistent.

An efficient estimator is an estimator which exhibits minimum variance relative to alternative means of estimation. The LOTIS vacancy data, for example, could have been generated in a regression analysis of vacancies and employment. There is reason to believe that either the methods used in the LOTIS project were found to yield minimum variance, or that alternatives were precluded on the basis of their relative cost.[27] Due to a paucity of existing data, and the need to make the unemployment data comparable with the job vacancy data, there were few alternatives to the method of estimation applied in the present study. It was therefore judged to be valid

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[26] Ibid., pp. 90-91 and W. G. Cochrane, Sampling Techniques, 2nd ed., (New York: John Wiley and Sons, Inc., 1963), pp. 57.

[27] In general, a stratified random sampling procedure is appropriate to cases where there is reason to believe that the variance within particular strata is less than the variance between strata. The greater homogeniety of sample elements within the strata allows for a more precise estimate. The particular procedure followed in the LOTIS sampling of covered employers is sometimes called an "optimum allocation" procedure, and applies to cases where there is a fixed sampling budget and varying sampling costs among the strata. See Yamane, op. cit., pp. 102-108, 113-118, 129-134, and pp. 143.

on the basis of other criteria, such as unbiasedness and accuracy in absolute terms.

A sufficient estimator is one which uses all the available sample information. The stratification of the LOTIS sample allowed for the subsequent standardization of job vacancies for industry, area, and employee size class. The use of sample proportions to estimate population proportions, as was done in the case of the unemployment data, makes use of all sample information relevant to the statistic. More generally, both methods of estimation used are known to be sufficient.

In summary, the methods used to estimate job vacancies and unemployment are consistent. The method used in the present study to estimate unemployment within occupational categories is unbiased, and the bias of the ratio estimator used in the LOTIS project is likely to be negligible given the sample size involved. Both methods of estimation are taken to be efficient in terms of accuracy and cost relative to alternatives.

The accuracy of the estimates of job vacancies and unemployment yielded by the methods of estimation previously discussed can be assessed in terms of the likely magnitudes of sampling and nonsampling errors. Sampling error represents the difference between an estimate generated on the basis of a sample and the "true" population figure that would be obtained in a complete count. Nonsampling errors include errors of reporting, nonresponse, and selection of the sample.

In the aggregate, the total estimated values for job vacancies and unemployment are derived by benchmarking sample results with total employment and total unemployment figures published by the Louisiana Department of Employment Security. Since there is reason to believe that any statistical bias resulting from application of the methods themselves is negligible or nonexistant, the sampling error of the total estimates can be taken to be largely dependent on the sampling error of the Employment Security figures.[28]

In the particular, the accuracy of the estimates of job vacancies and unemployment for specific occupations also depend on the extent of nonsampling errors. These errors cannot usually be evaluated in quantitative terms. Their possible significance can therefore usually only be suggested in qualitative terms.

One source of nonsampling error is represented by potential errors of reporting. The employers surveyed may have erred on the occupational qualifications, or may have initially overstated or understated these qualifications due to the existence of institutionalized procedures for hiring and promotion.[29] Or, the employers may have later revised these qualifications in the light of

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[28] Supra.

[29] These procedures could lead to an overstatement if the opening were to be filled from within the firm, and an understatement to the extent that the employer really seeks skills relevant to later promotions. See John T. Dunlop, "Job Vacancy Measures and Economic Analysis" in The Measurement and Interpretation of Job Vacancies, (Princeton: National Bureau of Economic Research, 1966).

subsequent Louisiana labor market developments.[30] The unemployed may have initially misreported their occupational skills or may have later changed them due to subsequent labor market conditions.[31] Finally, even if occupational skills were accurately reported by the respondents, there could conceivably have been errors of coding once the responses were collected.

For several reasons, these potential errors of reporting are not likely to represent particularly severe distortions for the purposes of the comparisons to be made in the present study. Lucid descriptions of the tasks and characteristics of particular job titles were included in the employer survey and employers were free to report vacancies in occupations, or grades of a given occupation not explicitly defined in the survey. Institutionalized procedures for hiring and promotion apparently do exist in Louisiana, at least in unionized industries.[32] A reasonable assumption would be that any existing overstatment or understatement of qualifications cancel out, or that the employers took the institutionalized procedures into account when reporting job openings.[33] The sheer detail of the

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[30]See, for example, M. W. Reder, "Wage Structure and Structural Unemployment," Review of Economic Studies, (October, 1964), pp. 315.

[31]Supra.

[32]T. R. Shapiro and W. D. Wagoner, Provisions of Trade Union Agreements in Louisiana, 1974, Research Study No. 20, (New Orleans: Division of Business and Economic Research, University of New Orleans, June, 1975).

[33]This is particularly plausible given that the employers knew from a cover letter that the purpose of the survey was for vocational-technical education planning.

DOT occupational classification scheme allows both employers and employees to be quite specific on the question of occupational skill. Although subsequent increases in the level of unemployment have been apparent since the time the survey was taken, some inferences on the possible effect of increased unemployment on the aspirations of both employer and employee can be made on the basis of intertemporal evidence. Finally, since full job descriptions are available, it is reasonable to assume that the coding was done properly.

Nonresponses are another source of potential sampling error. There were 1,232 unemployed individuals surveyed in the unemployment sample, representing 12 percent of the total sample size, who did not report a specific occupation. Of the employers surveyed in the LOTIS project, 20 percent did not respond. There is no generally accepted procedure for handling such nonresponses. In the case of the unemployment survey, the alternatives of putting the nonresponses in a separate category or allocating them among the occupations in the sample were available. As the allocation of the nonresponses among the approximate 900 occupations considered would have made little difference in any particular case, the unemployment nonresponses were put into a separate category. In general, the response rates associated with both surveys are considered to be excellent. Nonresponses were therefore judged to be an unlikely source of error.

The most potentially significant sources of nonsampling errors associated with the data sets used in the study are concerned with

possible errors in the initial selection of the sample frames. In general, these errors arise because selection of the sample frames may have systematically excluded particular employers or unemployed individuals. The important economic implication of these possible exclusions is that the estimates of the relative strengths of frictional, structural, and cyclical factors in Louisiana unemployment may differ from true values because the true extent of job openings and unemployment in particular occupations may be overstated or understated.

Geopolitical administrative considerations resulted in the restriction of the sample frames to Louisiana. This means that only job vacancies and the unemployed within the state had a chance of being included in the sample. Accordingly, care must be taken in the interpretation of labor shortages and surpluses yielded in comparisons of vacancies and unemployment. In particular, the possibilities of migration to and from the state must be considered as potential sources of relief to apparent labor shortages and surpluses within Louisiana.

The potential errors resulting from selection of the sample frames are not confined to intrastate omissions. There are potential errors arising from interstate exclusions as well. While these exclusions pose no problem in the aggregate, they do raise difficulties in the estimation of vacancies and unemployment within particular occupations.

The LOTIS sample frame excludes the self-employed, farm workers, domestic household workers, military personnel, and unpaid family workers.[34] The self-employed, military personnel, and unpaid family workers are not particularly serious omissions because job "vacancies" in these lines of work are, for one reason or another, irrelevant to the standard definition of unemployment. The exclusion of farms and private households from the LOTIS sample is more serious. Vacancies on farms or in households are definite employment possibilities for some of the unemployed.

There are problems with the unemployment sample frame as well. In order to qualify for the standard definition of unemployment, an individual otherwise qualified and not waiting to be recalled from a layoff must meet certain criteria. An individual may qualify for the definition and not seek employment through either public or private employment agencies. Since the unemployment survey only samples individuals who applied to public or private agencies, individuals who sought employment through alternative means were excluded from the sample frame.

There may be another problem in that not all agencies were included in the unemployment sample frame. Five public employment

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[34]The reason given for these omissions is that ". . . these are employment groups which probably should be excluded since they do not, in general, represent market demand for people trained in vocational training programs". See Louisiana Occupational Training Information System, Short-Range Manpower Demand, (Baton Rouge: Louisiana Occupational Training Information System, 1974), pp. 25.

agencies were missed, and a number of satellite "outreach" offices in rural parishes were excluded.[35]

Some significant potential for error is therefore introduced because of some limitations to the scope of the sample frames. The exclusion of farms and households from the LOTIS sample frame means that comparisons of job vacancies with the unemployed in farm and domestic occupations is impossible. If unemployed individuals not making contact with public or private employment agencies, or individuals making contact with agencies other than those surveyed, possessed occupational skills different from those possessed by the unemployed who were surveyed, then inaccurate estimates of the "true" skills possessed by the unemployed would result.

There is little opportunity to check the quantitative extent of these potential errors. What is clear is that farm workers and domestics must be considered separately because of the sample frame omissions.

In summary, the accuracy of the data sets to be used in the empirical analyses to follow depend on the extent of sampling and nonsampling error. The sampling errors involved are largely a function of the sampling error among CPS-based figures for employment and unemployment published by the Louisiana Department of Employment Security. As these figures have been recently improved,

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[35]Seven of these outreach offices were set up throughout rural Louisiana in the year of the unemployment survey. See Louisiana Department of Employment Security, Louisiana Rural Manpower Report, (Baton Rouge: Louisiana Department of Employment Security, 1973).

and are the most reliable available, they will be accepted for the purposes of the study. The nonsampling errors likely to pose the most serious distortions arise from interstate and intrastate exclusions resulting from selection of the sample frames. Interstate omissions can be at least recognized to a limited degree by noting migration movements. The only inaccuracies known for certain are those in the data for private household workers and farm workers. There is no evidence that the selection of the sample frames systematically excluded workers possessing other skills. Therefore estimates for occupations other than domestic work and farming will be assumed to be accurate.

Overall, the assessment of the two data sets according to standard criteria provides mixed results. The sampling and estimating techniques used, particularly in the LOTIS program, are among the best known. Unfortunately, little is known of the accuracy of Employment Security estimates for employment and unemployment in total. In the absence of information to the contrary, the study will be conducted under the assumption that these estimates, and the estimates of job vacancies and unemployment by occupational skill which are derived from them, are accurate. The author is aware of no surveys of job vacancies or unemployment in existence which provide as much occupational detail as those used in the present study. The unparalleled chance to make comparisons warrants reasonable assumptions as to the accuracy of the underlying data.

The full results of job vacancies and unemployment gleaned from the surveys, together with comparisons based on the theoretical framework of Chapter Two, appears in an appendix to the study. These comparisons provide the basis for a direct determination of the relative strengths of frictional, structural, and cyclical factors in overall unemployment within the state.

CHAPTER FOUR

FRICTIONAL UNEMPLOYMENT IN LOUISIANA

To what extent are frictional factors responsible for unemployment in Louisiana? Recent theories have sought to represent modern unemployment as being largely a manifestation of "massive frictional unemployment".[1] If true, this hypothesis would have some profound implications for public policy. The extent to which frictional factors are capable of explaining unemployment is therefore an empirical question of substantial interest.

As used in this study, the concept of frictional unemployment represents unemployed individuals who are expected to be temporarily between jobs within the state which are reasonably suited to their skills at current wage levels. The present chapter reviews the available evidence on the extent of this concept of unemployment. Indirect evidence is provided in an examination of short-term unemployment and in an analysis of some measurable components of frictional unemployment. Direct evidence is provided in a determination of the extent to which unemployed workers were matched by job openings suited to their skills at the time of the November, 1973 surveys. A discussion of some implications that the empirical findings

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[1]Chapter One, supra.

appear to hold for the frictional hypothesis and public policy concludes the chapter.

The Indirect Evidence

In the absence of detailed information on job vacancies and unemployment, a number of established indirect tests for the extent of frictional unemployment may be undertaken. Among these are analyses of short-term unemployment and examination of the relative strengths of some measurable components of frictional unemployment. As these approaches are essentially "backward looking," and because they fail to allow for structural and cyclical factors, sufficient evidence for frictional unemployment cannot be provided through them. Nevertheless, since the indirect approaches are capable of providing some necessary preconditions for frictional unemployment they are useful in augmenting more conclusive evidence provided by comparisons of job vacancies and the unemployed.

Short-Term Unemployment in Louisiana

To what extent does short-term unemployment account for overall unemployment in Louisiana? The duration of unemployment is usually defined as the length of time that it takes an unemployed worker to complete a spell of unemployment. If overall unemployment is largely attributable to individuals who are only temporarily between jobs, then a relatively short average duration of unemployment would be expected. On the other hand, if nonfrictional barriers to employment are important, then a longer average duration of unemployment may be

expected. An examination of the available evidence on the extent of short-term unemployment can therefore provide some useful indirect evidence on the possible extent of frictional unemployment in Louisiana.

Two problems arise in an examination of short-term unemployment in Louisiana. An obvious first difficulty is that it becomes necessary to distinguish between "short-term" and "long-term" unemployment. A common practice used in duration studies is to define short-term unemployment as that unemployment which lasts less than a month.[2] This definition will be adopted in the present inquiry. A second problem arises from a general paucity of data. This latter problem is more severe, particularly in the state of Louisiana.

In general, information on the duration of unemployment is collected in interviews.[3] These interviews would have to provide two kinds of information if a complete portrayal of the duration of unemployment is to be accomplished. These include the length of time that an unemployed worker had been jobless prior to the interview, and the length of time subsequent to the interview that the joblessness continued. Unfortunately, only the first of these

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[2]See, for example, Eleanor Gilpatrick, Structural Unemployment and Aggregate Demand, (Baltimore: Johns Hopkins University Press, 1966) or Martin Feldstein, "The Importance of Temporary Layoffs: An Empirical Analysis," Brookings Papers on Economic Activity, (3:1975), pp. 725-745.

[3]As, for example, in the CPS interviews described in Chapter Three, supra.

two kinds of information have been available from most interviews.[4] It is the only kind of information available for the state of Louisiana.

If the length of time that the unemployed have been jobless up to the time of interview is any indication, short-term unemployment appears to have increased in intensity over the years 1963 to 1973. In 1963, when total unemployment was 6.4 percent of the labor force, approximately 52 percent of the unemployed had been out of work for less than a month. In 1973, with an unemployment rate of 5.8 percent, 66 percent of the unemployed had been out of work for less than a month.[5] Since job vacancies are known to increase as the total unemployment rate rises, this is what would be expected given a hypothesis of rising frictional unemployment when total unemployment rises.[6] More importantly, there is apparently substantial short-term unemployment in Louisiana in absolute terms. This would appear, on the surface, to substantiate the frictional hypothesis.

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[4]Some follow-up interviewing, and estimation based on these follow-ups have been undertaken. See Stuart Garfinkle, "The Duration of a Spell of Unemployment," (paper presented at the November, 1975 meeting of the Southern Economic Association). No follow-up information was available for Louisiana; cost and time constraints precluded follow-up for the purposes of this study.

[5]1963 figures from Council for a Better Louisiana, Louisiana's Unemployed, (Baton Rouge: Council for a Better Louisiana, Vol. 1, September, 1964; Vol. 2, October, 1964); 1973 figures from Geneva B. Carroll, An Analysis of the Unemployed in Louisiana, (Baton Rouge: Louisiana Office of State Planning, 1973). Figures are averages of those in the seven Standard Metropolitan Statistical Areas.

[6]Chapter Six, infra.

Some important qualifications are in order, however. There is nothing the available data is capable of indicating as to how long the unemployed which were interviewed remained jobless subsequent to the interviews. It is possible that they remained unemployed only a short period of time, or it is possible that structural or cyclical barriers impeded their job search to a large degree, resulting in "long-term unemployment". Moreover, may even be that the unemployed interviewed became discouraged over the prospect of future unsuccessful job search and left the labor force entirely.

Voluntary Unemployment in Louisiana

To what extent do voluntary factors account for total unemployment in Louisiana? If overall unemployment in the state is largely a frictional problem, then it may be because the unemployed either left or were dismissed from their former positions. If it is assumed that structural and cyclical impediments are largely absent, then the frictional unemployment which could hypothetically result from these factors may account for a great deal of overall unemployment in the state.

The available evidence suggests a substantial degree of voluntary unemployment in Louisiana, if not a substantial degree of frictional unemployment. When the employed and the unemployed applicants surveyed are considered together, approximately 63 percent report desiring a change in job. Among the unemployed alone, the figure is even higher; 73 percent reported that a change in job was desired.

The available data allow an assessment of the relative importance of some specific reasons for desiring a change in jobs. The applicants were asked the reason for wanting a job change, and were given the choice of a desire for salary increase, a change in personal qualifications, the availability of a new job, the nonexistence of former job, and "other". With the exception of "nonexistence of former job", which is more indicative of nonfrictional factors,[7] the relative importance of these reasons among the unemployed overall is presented in Table 4-1.

TABLE 4-1
INDICATORS OF VOLUNTARY UNEMPLOYMENT IN LOUISIANA
NOVEMBER, 1973

Reasons for Unemployment	Percentage of Total Unemployed
Salary Increase Desired	18
Personal Qualifications Changed	4
New Job Available	13
Other[a]	37
Total	72

Source: Calculated from data provided by the Louisiana Office of State Planning.

[a]"Other" includes dismissals where old job exists, and does not include dismissals where old job does not exist. Percentages will therefore not equal 100 percent when summed.

[7]"Nonexistance of former job" implies that the former job is no longer available to anyone in the state at current wage rates, therefore precluding the possibility of a job vacancy. This definitely takes us out of the purview of frictional unemployment.

Overall, 37 percent of the unemployed surveyed reported that their unemployment and desire for job change was due to factors other than a desire for salary increase, a change in personal qualifications, or the availability of a new job. This puts the "other" category far ahead of the remaining reasons.

A desire for an increase in salary was second in relative importance among voluntary factors in Louisiana unemployment at the time of interview. Overall, 18 percent of the unemployed gave this as the reason for their desire to change jobs.

Third in importance among voluntary factors in Louisiana unemployment was the availability of a new job. Approximately 13 percent of the unemployed surveyed responded that a new job was available to them.

Finally, a change in personal qualifications does not appear to be a significant reason for a wish to change jobs among the Louisiana unemployed. Only 4 percent of the unemployed surveyed wanted to change jobs due to a change in qualifications.

Limitations which are similar to those advanced in the case of the evidence on duration must be noted. There is no assurance that a change in job would actually take place among the "voluntary" unemployed. Unemployment among those individuals reporting voluntary reasons for unemployment could have conceivably continued beyond simple short-term joblessness. Therefore, the unemployed reporting "voluntary" reasons for their desire to change jobs could have faced

structural or cyclical barriers to employment just as easily as frictional barriers.

Seasonal Unemployment in Louisiana

To what extent are yearly, predictable patterns in Louisiana unemployment responsible for the overall rate of joblessness in the state? Such patterns are known to exist as a result of temporary variations in employment in agriculture and construction, and as a result of changes in the labor force attributable to the school term. If quantitatively important, seasonal factors would indicate a substantial degree of short-term frictional unemployment in Louisiana.

A well known technique for estimating the impact of seasonality on overall unemployment is the moving average method. First, a twelve-month moving average is constructed, initially centered on the seventh month. This moving average is then divided into the original unemployment value for each month. This step is applied to monthly data over a number of years. In order to get a typical ratio for a particular month, and in order to adjust for random historical variations, a medial average is then computed. This is accomplished by discarding high and low values and taking the average of the remaining observations. Finally, each medial average is then adjusted by dividing it by the sum of these averages so that the average seasonal index for the year will be exactly equal to 100.

Table 4-2 shows the calculation of monthly easonal indices using data for Louisiana. These indices indicate how much above or below the annual average value each monthly value is.

Table 4-2
Seasonality of Louisiana Unemployment:
Derivation of Seasonal Indices

Month	Year					Medial Average[a]	Seasonal Index[b]
	1970	1971	1972	1973	1974		
January		106	105	107	111	107	106.3
February		106	112	102	108	107	106.3
March		101	113	100	99	101	100.3
April		97	94	93	95	95	94.3
May		95	92	96	94	95	94.3
June		119	116	125	114	118	117.2
July	108	107	110	106	106	107	106.3
August	97	97	102	102		100	99.3
September	97	99	99	100		99	98.3
October	92	93	96	92		93	92.4
November	95	94	89	86		92	91.4
December	93	99	97	89		95	94.3
Total						1209	1200

[a]The row average excluding highest and lowest value. Entries in rows are original unemployment rates divided by a twelve month moving average initially centered in July, 1970.

[b]Adjustment factor = $\frac{1200}{1209}$ = .993

The data indicates that seasonal factors have a positive impact on Louisiana unemployment during the months of January, February, June, and July. In each of these months, seasonal factors tend to raise Louisiana unemployment over what it would have been in the absence of seasonality. The maximum positive impact of seasonal factors on total unemployment occurs in June, when unemployment is typically 17.2 percent higher than the average annual value.

The data indicates that seasonal factors have a negative impact on Louisiana unemployment during the months of April, May, and August through December. In each of these time periods, seasonal factors tend to lower Louisiana unemployment from what it would have been in the absence of seasonality. The maximum negative unemployment occurs in the month of November, when unemployment is typically 8.6 percent lower than the average annual value.

The high seasonality of unemployment found in the early months of the year may be attributable to workers who have temporarily lost jobs in construction or agriculture, and/or to workers who have lost jobs in temporary holiday-related work. The extreme positive impact of seasonal factors on total unemployment in the summer months probably reflects students and teachers seeking summer employment when the school term ends. Students and teachers returning to school also probably account for the negative impact on unemployment observed in the fall months, although harvesting in agriculture is also an undoubtedly strong factor. Perhaps the beginning of the school term

accounts for the late summer and early fall dips in the index, and harvesting in agriculture accounts for the stronger dip in the month of November.

In November, when the data on job vacancies and unemployment by detailed occupation was collected, the data suggests that seasonal workers were for the most part employed. This suggests an absence of seasonal barriers to employment among the unemployed in November. In turn, it follows that seasonal adjustment would be unnecessary for the purposes of this study.

The overall conclusion afforded by the evidence on seasonality is that expected patterns in unemployment exist over the course of a typical year. These patterns, particularly the large positive effect on unemployment in the summer months, in turn suggest substantial frictional movements in the overall rate of unemployment.

In general, the indirect measures provide some useful but limited evidence. The conclusion must be that some necessary preconditions for substantial frictional unemployment is indicated, but that insufficient evidence is available to warrant a conclusion that frictional factors are more important than nonfrictional factors.

The Direct Evidence

The available indirect evidence would suggest that the necessary preconditions for a substantial degree of frictional unemployment are present in Louisiana. Yet, the indirect evidence is

necessarily circumstantial because it is retrospective and because structural and cyclical barriers are not taken into account. An analysis capable of determining the relative extent of frictional factors as a barrier to employment, and which is capable of taking structural and cyclical factors into account in this determination, would therefore provide some useful direct evidence.

One way in which such a body of direct evidence may be provided is through a determination of the extent to which the unemployed are matched by job vacancies relevant to their qualifications. This would give an indication of the extent to which unemployment might be due to temporary maladjustments in the demand for, and supply of, labor where jobs are available within reasonable reach and reasonably suited to their skills at current wage levels. Such a comparison would result in a direct assessment of the degree to which frictional factors represent a barrier to employment confronting the unemployed, taking structural and cyclical barriers into account.

Could the unemployed in Louisiana have found jobs suited to their skills somewhere in the state at current wage levels? The data sets described in Chapter Three allow an answer to this question as of November, 1973. Using this data, it is possible to compare numbers of unemployed and job vacancies for over 900 distinct and separate DOT occupational categories. This comparison is shown in the Appendix.[10] A summary of the extent to which unemployed

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[10] Infra.

workers were matched by job openings in these 900 occupations is reported by major DOT occupational groups in Table 4-3.

The evidence indicates that 31,085 unemployed individuals could have found employment within their reported occupation somewhere in the state in November of 1973. These individuals accounted for 38 percent of the unemployed, and 2.2 percent of the 1.4 million member labor force.

In an effort to identify the frictionally unemployed, a descriptive analysis of frictional unemployment among particular DOT occupational categories may be undertaken. It is reasonable to suppose that maximum effectiveness in reducing unemployment through the provision of information would result if such a strategy were concentrated among individuals experiencing the highest levels of frictional unemployment.

At the time of the surveys, clerical and sales occupations accounted for a third of the total level of frictional unemployment and 13 percent of total unemployment in the state. This ranked highest among the major DOT categories.

The clerical category includes occupations related to stenography, typing, filing, computing and account recording, material and production recording, and information and message distribution. Frictional factors were responsible for all of the unemployment among claims clerks, personnel clerks, stenographers, accounting

TABLE 4-3
FRICTIONAL UNEMPLOYMENT IN LOUISIANA
NOVEMBER, 1973

OCCUPATIONS	NUMBER	PERCENT OF TOTAL
PROFESSIONAL, TECHNICAL, MANAGERIAL	3,941	13
CLERICAL AND SALES	10,405	33
SERVICES	5,854	19
FARMING, FORESTRY, FISHING	--	--
PROCESSING	433	1
MACHINE TRADES	1,328	4
BENCH WORK	1,712	5
STRUCTURAL WORK	5,803	19
MISCELLANEOUS	1,589	5
TOTALS	31,085	100

Source: Entries refer to the extent to which unemployed workers were matched by job vacancies by DOT occupational group. The full comparison appears in the Appendix, infra.

clerks, machine bookkeepers,[11] general office clerks, key punch operators, and meter readers. Frictional unemployment among payroll clerks, expeditors, shipping and receiving clerks, and stock clerks was also extremely high.

The sale category includes saleswork related to services, commodities, and a miscellaneous category which includes such occupations as peddling and retail department managers. Frictional factors were found to be responsible for all of the unemployment among real estate salesmen and brokers, insurance salesmen, securities salesmen, retail department managers, sales clerks, and salesmen-drivers. Commodity salesmen as a whole also experience substantial frictional unemployment.

Ranking second among the DOT occupational categories in terms of frictional unemployment was services. Approximately one fifth of all frictional unemployment, and 8 percent of total unemployment in the state was found to be attributable to frictionally unemployed individuals in this category.

The services category includes domestic service, food and beverag
beverage preparation, lodging services, barbering and cosmetology, amusement and recreation, protective services, and building services.

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[11] The introduction of bookkeeping machinery has made it difficult for hand bookkeepers to find jobs. Thus, as expected, only 31 percent of the unemployment among hand bookkeepers is attributable to frictional factors, compared with the overall average of 38 percent.

Frictional factors were responsible for all of the unemployment among chefs, cooks, food service supervisors, restaurant and coffee shop hostesses, nondomestic housekeeping, cosmetologists, laundry workers, shoe repairmen, private detectives, firemen and fire service workers, security guards, and custodians. Few of the other service occupations were found to exhibit a high degree of frictional unemployment, although over half of the unemployment among teacher aides and among hospital and morgue attendents was attributable to frictional factors.

Third in importance among the major DOT classifications in terms of frictional unemployment was structural work. Approximately 19 percent of all frictional unemployment, and 7 percent of overall unemployment in the state was attributable to frictional unemployment in structural work.

The structural work category includes occupations related to metal fabricating, welding, electrical assembly and repair, painting and plastering, excavating, grading; and such construction related occupations as bricklaying, carpentry, and plumbing. Frictional factors were responsible for all of the unemployment among assemblers, automobile body repairmen, fitters, sheetmetal workers, shipfitters, structural steel workers, welders, electricians and cablemen, cement masons, construction and maintenance painters, automobile painters, bricklayers, carpenters, carpet layers, glaziers, plumbers and pipefitters, roustabouts, and maintenance men.

Ranking fourth among the major DOT categories in terms of frictional unemployment was the professional, technical, and managerial category. Approximately 13 percent of total frictional unemployment, and 5 percent of total unemployment in the state was attributable to frictional unemployment in this category.

The professional, technical, and managerial category includes occupations in architecture and engineering, mathematics and the physical sciences, the life and social sciences, medicine and health, education, museum and library sciences, law, religion, writing, art work, entertainment and recreation, administrative specialties, and managerial work.

Although frictional unemployment among these occupations together account for only 5 percent of total unemployment, frictional barriers are by far the most significant of all for the unemployed possessing professional, technical, and managerial skills. Indeed, frictional unemployment is pervasive among these occupations relative to nonfrictional unemployment that an indication of the occupations involved can be provided most expeditiously by noting the occupations in which unemployment is not all frictional.

Among the engineering and architectural occupations, only builders, some specialized draftsmen, aeronautical and aerospace

engineers,[12] mining engineers, and surveyors showed evidence of nonfrictional unemployment. A total of 134 unemployed individuals would have found it impossible to market these skills.

The only nonfrictional unemployment to be found among mathematics and the physical sciences existed in mathematics, meterology, and business programming. Only 83 unemployed individuals would have found it impossible to sell these skills at current wage rates, however.

In the life sciences, only biology and psychology were occupations in which not all unemployment was frictional. A total of 135 unemployed individuals possessing these skills were involved.

The social sciences showed the only deviation from a pattern of pervasive frictional unemployment among the professional, technical, and managerial occupations. A total of 63 unemployed individuals in the social sciences could not have found employment in their respective occupations at current wage rates. Economics was the only category in which frictional unemployment was evident among the social sciences.

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[12]The finding of nonfrictional unemployment among aerospace engineers may in part be due to a phasing out of the National Aeronautics and Space Administration facility in New Orleans. See Louisiana Office of State Planning, The State of the State in 1973: An Economic and Social Report to the Governor, (New Orleans: Division of Business and Economic Research, College of Business Administration, University of New Orleans, 1973), pp. 48.

Unemployment in medicine and health occupations was all frictional, with the exception of dental assistance, pharmacy assistants, and an indeterminate (yet rated) "miscellaneous" category. A particularly striking fact was that three-fourths of the total frictional unemployment in medicine and health was attributable to unemployment among Registered and Licensed Practical Nursing. Much has been made of an apparent "shortage" of nurses in the state, and the high degree of frictional unemployment among nurses indicates that the "shortage" may be due to above-average voluntary unemployment among these individuals in addition to a lack of trained personnel.

Unemployment in the educational occupations followed a pattern of being frictional where specialization was evident. Unemployment among college and university faculty, school administrators, kindergarten teachers, and teachers in special and vocational-technical education was entirely frictional. About half of the unemployment in the remaining teaching occupations was frictional, with the onnfrictional unemployment concentrated principally in elementary and secondary education.

Frictional unemployment was also pervasive among the unemployed possessing various managerial and administrative skills. The only administrative specialities in which unemployment was not all frictional were found to be advertising management, budget and management analysis, building inspection, park ranger, personnel director, and sales and distribution. Occupations in which nonfrictional

unemployment was evident among the managerial category included construction management, controller, and manager trainee.

Ranking fifth among the major DOT occupational categories in terms of frictional unemployment was bench work. Approximately 5 percent of total frictional unemployment, and 2 percent of overall unemployment in the state was found to be attributable to frictionally unemployed individuals possessing skills falling into the bench work category.

The bench work category includes occupations delineated according to the fabrication, assembly, and repair of various products. Frictional factors were found to be responsible for all of the unemployment among engravers, jewelers, dental laboratory technicians, electric motor repairmen, radio and television repairmen, furniture finishers, textile cutters, and furniture upholsterers. Frictional factors explained much of the unemployment among instrument repairmen, sewing machine operators, and seamstresses.

A number of miscellaneous occupations ranked sixth among the major DOT titles in terms of frictional unemployment in Louisiana. The percentages, though somewhat lower than for benchwork, rounded to the same values. Approximately 5 percent of total frictional unemployment, and 2 percent of overall unemployment in the state was attributable to frictional unemployment among individuals possessing "miscellaneous" skills.

Among the occupations included in the miscellaneous category are motor freight work, packaging and materials handling, mineral

extraction, logging, production and distribution of utilities, amusement and motion picture work, and graphic art work. Unemployment among ambulance drivers and attendents, bus drivers, deck hands, gaugers, longshoremen, taxi drivers, ticket agents, cranemen and riggers, derrickmen, rotary drill operators, oil well servicemen, stationary engineers, and power plant operators was found to be enitrely frictional.

Machine trades ranked second to last among the major DOT categories in terms of the incidence of frictional unemployment. Approximately 4 percent of total frictional unemployment, and 2 percent of total unemployment in the state were found to be attributable to frictionally unemployed individuals possessing skills related to the machine trades.

The machine trades category includes occupations related to metal machining, mechanical repairing, paperworking, printing, wood machining, and textile machine work. In the metal machining occupational category, frictional factors explained all of the unemployment among machinists, production machine operators, power brake operators, and metal fabricators. In mechanical repair, all of the unemployment among air conditioning and refrigeration mechanics, diesel mechanics, farm equipment mechanics, marine engine mechanics, office machine servicemen, and most of the unemployment in the remaining lines of work were attributable to individuals who were frictionally unemployed. No frictional unemployment was found in paperworking. In printing, all of the unemployment among cylinder and offset pressmen was

attributable to frictional factors. Among the remaining occupations, frictional unemployment was found to be present among unemployed tool and die makers, millmen in woodworking, small engine repair, power shear operators in metal fabrication, automobile mechanics, aircraft engine mechanics, cabinet makers, gang saw operators, and oilers and greasers.

Finally, the incidence of frictional unemployment by major DOT category was found to be least among processing occupations. Approximately 1 percent of total frictional unemployment, and 1 percent (rounded) of the level of total unemployment in the state was found to be attributable to unemployed individuals possessing processing skills.

The processing category includes occupations related to the processing of metal, ore, food and related products; paper and related products, petroleum, chemicals, wood and wood products; stone, clay and glass products; and leather and textile products. Frictional factors explained all of the unemployment among bakers, butchers, factory helpers, and laborers in processing.

In sum, the direct evidence indicates that approximately one out of three unemployed Louisianas could have found employment suited to their occupational skills somewhere in the state at current wage levels. For the individuals just identified, it may be concluded that neither skill nor the existence of job openings posed a barrier to employment within the state. Rather, a lack of information on the location and lack of job vacancies discovered in the

LOTIS survey was a probable strong contributing factor to the unemployment of these individuals.

The extent to which differences education and skill requirements between occupations may have been a barrier to the unemployed as of the time of the surveys is a question more fully explored in the next chapter. At this point, however, the possibility of education and skill as barriers within the DOT occupations may be noted.

As a test for possible association between levels of frictional unemployment and the GED and SVP ratings, a rank correlation analysis may be undertaken. If there is any relationship between frictional unemployment and levels of education and skill, such an analysis would be capable of revealing it.

The Spearman Rank Correlation Coefficient of association[13] between GED level and the percentage of total unemployment which is attributable to frictional factors can indicate possible relationships among frictional unemployment and education. If frictional unemployment is concentrated among the highly educated, this coefficient would be large and positive. On the other hand, if frictional unemployment is concentrated among individuals possessing low levels of education, the coefficient would be large and negative. The actual coefficient, calculated on the basis of the data in Table 4-3 after converting the frictionally unemployed to percentages, was

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[13]See Harold L. Pazer and Lloyd A. Swanson, Modern Methods for Statistical Analysis, (Scranton: Intext Educational Publishers, 1972), Chapter 10 for a discussion of the Spearman Coefficient.

found to be +.46 but insignificantly different from zero at the 90 percent confidence level.

A similar analysis may be undertaken for investigation of a possible association between specific vocational preparation, measured by training time, and levels of frictional unemployment. As before, if the coefficient is found to be large and positive, then frictional unemployment would be concentrated among unemployed individuals possessing skills which take comparatively longer periods of time to acquire. On the other hand, if the coefficient is found to be large and negative, then frictional unemployment would be concentrated among individuals possessing skills which take comparatively short time periods to acquire. The actual coefficient was found to be +.12 but insignificantly different from zero at the 90 percent confidence level.

These results may be interpreted as indicating that total frictional unemployment in Louisiana is concentrated neither in occupations in which neither high nor low levels of education and skill appear to be required. Education and skill do not appear to be serious barriers to the employment of the frictionally unemployed, or, in general, education and skill do not appear to be barriers to the employment of the individuals who could have found jobs in the DOT occupations compared.

Some Implications

Some guarded optimism is afforded with respect to general economic problems given the level of frictional unemployment in Louisiana. Frictional unemployment is regarded as a "normal" or expected source of employment, and is generally thought to be required for economic efficiency. Moreover, since the frictional unemployment found might reasonably have been expected to be short-term, minimal losses in output, personal income, and consumption could have been expected in November, 1973.

The Louisiana Department of Employment Security, in its role of providing information to the unemployed, should concentrate these efforts first among clerical and sales workers, and then among the other occupations identified in the order presented. A maximum reduction in unemployment via information services would be expected if information resources are allocated most among those occupations in which frictional unemployment is highest.

Finally, while there appears to be substantial potential for reducing unemployment using information services alone, the critics of this approach may have a case. While one out of three unemployed Louisianans could have found employment suited to their skills as of November, 1973 the other two could have not. The extent to which education, occupational skill, and aggregate job opportunity may have been barriers to employment confronting these "other two" is an empirical question of substantial interest.

CHAPTER FIVE

STRUCTURAL UNEMPLOYMENT IN LOUISIANA

To what extent are structural factors responsible for unemployment in Louisiana? For two out of three unemployed individuals in the state, frictional factors were found to be unlikely barriers to employment in a typical year. This suggests that structural or cyclical factors may have been responsible for a substantial amount of joblessness in the state. A substantial degree of structural unemployment would imply the possible need for job training as a public policy measure. The likely extent of structural unemployment within Louisiana is therefore an empirical question of significant interest.

As used in this study, the concept of structural unemployment includes those unemployed individuals for whom a change in occupation would have been necessary to employment within the state at current wage rates. The present chapter reviews the available evidence on the extent of this kind of unemployment. Indirect evidence is provided in examinations of long-term unemployment and the trends, both historical and expected, in the occupational composition of employment in the state. Direct evidence is provided in a determination of the extent to which a change in occupation would have been necessary for employment of the unemployed, and in an assessment of the extent to which this change in occupations may have required some additional formal education and specific vocational preparation.

The Indirect Evidence

In the absence of detailed information on job vacancies and unemployment by occupational skill, a number of established indirect tests for the extent of structural unemployment may be undertaken. Amont these are empirical analyses of the duration of unemployment, and the historical and expected trends in the industrial and occupational composition of employment. Because these indirect approaches are retrospective to the time the data is collected, and because the approaches fail to take frictional and cyclical possibilities into account, a sufficient case for the existence of structural barriers to employment cannot be provided. Nevertheless, since the indirect approaches are capable of providing some necessary preconditions for structural unemployment, they are useful in augmenting direct evidence gleaned in a comparison of job vacancies and the unemployed by detailed occupational skill.

Long-Term Unemployment in Louisiana

To what extent does long term unemployment account for total unemployment? If nonfrictional barriers to employment are important, then a comparatively longer average duration of unemployment could be expected.[1] If education and occupational skill are among these barriers, then this longer average duration of unemployment would be

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[1] Barbara Bergman, "Alternative Measures of Structural Unemployment," in Arthur Ross, ed., Employment Policy and the Labor Market, (Berkeley: University of California Press, 1965).

expected because larger pecentages of individuals are confronted by jobs which require high levels of educational attainment and skill.

The available data allows an indirect assessment of these propositions. In 1963, when total unemployment was 6.4 percent of the labor force, approximately 48 percent of the unemployed had been out of work for more than a month. In 1973, with an unemployment rate of 5.8 percent, this figure had fallen to 33 percent.[2] Since job vacancies are known to increase when total unemployment falls, this is what would be expected.[3] Frictional unemployment would be expected to be higher relative to nonfrictional unemployment in 1973 compared to 1963, because cyclical unemployment was lower in 1973 than it was in 1963.

Beyond this expected finding, however, an apparent anomoly arises. In 1963, 1.9 percent of the unemployed had been seeking employment for a year or more.[4] In 1973, 4.3 percent had been seeking employment for a year or longer.[5] So, while short-term

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[2]1963 figures from Council for a Better Louisiana, Louisiana's Unemployed, (Baton Rouge: Council for a Better Louisiana, Vol. 1, Sept. 1964; Vol. 2, Oct. 1964); 1973 figures from Geneva B. Carrrol, An Analysis of the Unemployed in Louisiana, (Baton Rouge: Louisiana Office of State Planning, 1973). Figures are averages of those in the seven Standard Metropolitan Statistical Areas.

[3]Chapter Six, infra.

[4]Council for a Better Louisiana, op. cit.

[5]Carroll, op. cit.

unemployment increased as expected, very long term unemployment also increased in relative terms. This is contrary to expectations unless structural unemployment had also increased in importance in 1973 compared with 1963.

The indirect evidence of duration would therefore appear to suggest the presence of structural unemployment. This is particularly plausible given two further considerations.

First, it must be remembered that the data on the duration of unemployment is incomplete. In both of the surveys discussed, only information on the length of time that the unemployed had been looking for a job prior to the surveys is available. This means that the unemployed could have remained jobless for any length of time after the survey.

Second, the direct analysis of the maximum extent of frictional factors found duration to provide a probable overstatement of the extent of frictional unemployment. While two thirds of the unemployed had been seeking work for a month or less, only one third would have been confronted by the possibility of obtaining employment in their occupation somewhere in the state. The fact that half of the "short term" unemployed would have had to change occupations in order to secure employment at current wage rates suggests the potential for a substantial overestimate of the extent to which unemployment is not "long-term", and an understatment of the extent to which it is long term.

These two considerations suggest a substantial potential for structural unemployment. Given that long-term unemployment has the potential for being understated, and because half of those who were found to be in the short term category would have found it necessary to change occupations, a substantial potential for longer-lasting structural unemployment is indicated.

While the indirect evidence on duration would suggest a necessary condition for structural unemployment in general to exist, the extent to which formal education and specific job training may have been part of this structural unemployment can only be speculated. Further indirect evidence, in the form of the changing occupational composition of Louisiana unemployment, would therefore provide some further useful indirect evidence.

Trends in the Occupational Composition of Louisiana Employment

What historical and expected trends are evident in the occupational composition of employment in Louisiana? If particular occupations are experiencing rapid growth, relative to other occupations, then a precondition for structural unemployment would be established because it would be likely that an unemployed worker would find it necessary to change occupations in order to secure employment. Further, if this occupational change would require substantial reorientation in terms of general education and specifc vocational preparation, then the necessary preconditions for structural barriers to employment are established.

Table 5-1 summarizes the available evidence on historical and expected trends in the occupational composition of employment in Louisiana. Over the decade 1960 to 1970, total employment grew 20.7 percent. Based on forecasted trends in the industrial composition of employment, it is expected that the increase in total employment between 1970 and 1980 will be between 18.8 and 25.0 percent of 1970 employment.

If past trends in the occupational composition of employment continue, however, there are some probable deviations from the overall average increase. Above-average percentage increases have been evident and are expected to continue for professional and technical workers, clerical and kindred workers, and craftsmen and foremen. While growth in the employment of sales workers was below average over the 1960-1970 decade, above average growth in this category is expected over the 1970-1980 decade. Finally, employment among both farm and nonfarm laborers declined over the decade 1960-1970.

The evidence indicates that the fastest-growing occupations in terms of employment are also among those estimated to require the highest levels of educational attainment and specific vocational preparation. Further, occupations in which below average growth is apparent are among those estimated to require the lowest levels of educational attainment and specific vocational preparation.[6]

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[6]The estimates to be used in the ensuing analysis are derived from James G. Scoville, "Education and Training Requirements for Occupations," Review of Economics and Statistics (November, 1966), pp. 387-394.

TABLE 5-1
OCCUPATIONAL COMPOSITION OF LOUISIANA EMPLOYMENT:
HISTORICAL AND PROJECTED TRENDS

	Employment Trends				
	Levels			% Change[a]	
	1960	1970	1980[b]	1960-70	1970-80[b]
Professional and Technical	122,309	184,702	247,483 - 260,463	51.0	33.9-41.0
Manager and Officials	116,736	139,664	160,682 - 169,130	19.6	15.0-21.0
Clerical and Kindred	144,218	212,508	276,097 - 290,523	47.3	29.9-36.7
Sales Workers	65,469	75,158	91,397 - 96,246	14.7	21.6-28.0
Craftsmen and Foremen	128,396	166,610	202,976 - 213,465	29.7	21.8-28.1
Operatives	148,423	177,036	199,303 - 209,659	19.2	12.5-18.4
Service Workers	155,846	155,846	221,287 - 233,044	19.6	18.6-24.9
Nonfarm Laborers	72,367	77,648	74,613 - 78,459	-7.2	--3.9- 1.0
Farmers and Farm Labor	112,231	67,630	56,159 - 59,106	-39.7	-16.9-(-)12.6
TOTALS	1,066,000	1,287,500	1,530,000-1,610,100	20.7	18.8-25.0

Source: Figures on 1960 and 1970 employment are from U.S. Bureau of the Census, U.S. Census of Population, Part 20, Louisiana, (Washington: U.S. Government Printing Office, 1960 and 1970). Figures for 1980 are forecasted from trends in industrial employment using the Bureau of Labor Statistics industry/occupation matrix found in U.S. Bureau of Labor Statistics, United States, Department of Labor, Tomorrow's Manpower Needs, BLS Bulletin No. 1769, (Washington: U.S. Government Printing Office, 1973). Forecasts were provided by the Public Affairs Research Council of Louisiana.

[a]Percentages are expressed in terms of base year employment.

[b]Figures refer to 90 percent confidence interval.

The professional and technical category ranked first in terms of both historical and expected increases in employment. The percentage increase in employment in this category was 51 percent over the decade 1960-1970, and is expected to increase by between 34 and 41 percent over the decade 1970-1980. According to the GED and SVP ratings, professional and technical occupations require the highest levels of formal education and specific vocational preparation.[7]

Employment in the clerical and kindred category ranked second in terms of both historical and expected increases. The percentage increase in employment among clerical and kindred workers was 47 percent over the decade 1960-1970, and is expected to range between 30 and 37 percent over the decade 1970-1980. While clerical workers are rated above average in terms of educational requirements they are below average in terms of the estimated length of time that an employee needs to spend in specific vocational preparation. According to the GED rating, clerical occupations rank fourth highest among the nine occupational groups. According to the SVP rating, however, clerical occupations rank next to last.

Craftsmen and foremen ranked third in terms of both historical and expected increases in employment. Employment in the craftsmen and foremen category increased 30 percent over the 1960-1970 decade, and is expected to increase by between 22 and 28 percent over the 1970-1980 decade. According to the GED and SVP ratings, employment

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[7] Ibid.

in the craftsmen and kindred occupations requires the third highest levels of educational attainment, and the third highest level of specific vocational preparation in terms of training time.

Ranking fourth among the groups in terms of historical percentage increase and experiencing approximate average increases in both historical and expected increases in employment is the service workers category. The percentage increase in employment in this category was 20 percent over the 1960-1970 decade, and the expected percentage increase in employment over the subsequent decade ranges from 19 to 25 percent. According to the GED rating, the services category ranks seventh. According to the SVP estimates, service workers rank sixth.

While employment in the service occupations exhibits an average general increase, there was a significant deviation apparent in one of the occupations in the group. Employment among private household workers fell by 1,751 workers between 1960 and 1970, a drop of 2.8 percent. The expected change in employment between 1970 and 1980 ranges from a fall of 4.4 percent to an increase of only 0.7 percent. For the purposes of this study, it is sufficient to note that the GED and SVP ratings of private household employment are among the lowest of all the occupations.

The managers and officials category also exhibited average historical and projected growth trends. The growth rate over the 1960-1970 decade was 20 percent, and the expected percentage increase over the 1970-1980 years ranges between 15 and 21 percent. The

category ranked high in terms of the GED and SVP ratings, being second only to the professional and technical category in terms of these measures.

The operatives category experienced slightly below-average percentage increases in employment between 1960 and 1970, but is expected to exhibit substantially below-average increases over the subsequent decade. The rate of growth between 1960 and 1970 was 19 percent, and the percentage increase in employment between 1970 and 1980 ranges from between 13 and 18 percent. Operatives rank sixth in terms of GED rating, and fifth in terms of specific vocational preparation, among the eight groups.

Sales workers exhibited below-average growth over the 1960-1970 decade, but are expected to show above average percentage increases in the subsequent decade. Employment in sales increased 14.7 percent between 1960 and 1970, but is expected to increase between 22 and 28 percent between 1970 and 1980. Employment in sales is rated fifth among the groups in terms of GED requirements and seventh in terms of SVP requirements.

Employment in "Laborer" occupations declined between 1960 and 1970. These historical declines are expected to continue between 1970 and 1980, both for farm and nonfarm laborers.

Nonfarm labor fell by 7 percent between 1960 and 1970. The expected decline in nonfarm labor between 1970 and 1980 ranges from 1 percent to 3 percent. Nonfarm labor is rated the lowest of all the groups in terms of formal education estimated to be

required for employment. It is also rated the lowest in terms of the length of specific vocational preparation time that is estimated to be required for securing occupational skills.

Finally, employment in the farmers and farm labor category declined the most in percentage terms between 1960 and 1970, and is expected to show the greatest percentage decline in employment between 1970 and 1980. The percentage decline in this category was 40 percent between 1960 and 1970, and the expected percentage decline between 1970 and 1980 ranges from 13 percent to 17 percent. In terms of both GED and SVP ratings, the farmer and farm worker category is the second lowest among the groups.

Further investigation of the available evidence on the changing occupational composition of Louisiana unemployment, and the implications for potential structural unemployment may be provided in a correlation analysis. If education and job training are becoming increasingly important as requisites to employment as a result of the changes just described, there would be a high correlation observed between rates of growth among occupations and SVP and GED ratings. On the other hand, if education and job training are not becoming more important as prerequisites to employment, then there would be no correlation between employment growth rates and the ratings. Finally, if education and skill are becoming less important as a result of the changes noted, then a negative correlation would be observed.

Since the GED and SVP ratings may be assigned only ordinal significance, the relevant test statistic to use is the Spearman Rank Correlation coefficient. This coefficient assumes a value from -1 to +1, with the interpretations just indicated.

If formal education is increasing in significance as a general requirement to employment as a result of the occupational shifts indicated, the Spearman coefficient would be large and positive. When historical growth rates are ranked and correlated with GED rankings, an actual Spearman Coefficient of +.79 is obtained and found to be positive and statistically significant at the 99 percent confidence level.

If specific vocational preparation, as measured by the time spent in acquiring skills, is becoming more important, then a large and positive Spearman coefficient would be expected. The actual coefficient was found to be +.53 but insignificantly different from zero at the 90 percent confidence level.

The latter result is surprising, particularly since it might be expected that the GED and SVP ratings are themselves highly correlated. Further investigation reveals the source of this apparent anomoly, however. It will be recalled that the clerical occupations ranked second only to the professional and technical occupations in terms of historical and expected growth. Further, while the average GED rating was relatively high for these occupations, the time necessary to acquire the basic skills used in

these occupations is relatively short. It may be that this explains why the coefficient could not support a hypothesis of an increasing importance of SVP time as employment changed over the decade.

When a correlation is undertaken without including the clerical occupations, this is found to be the case. The Spearman coefficient for the correlation between rankings of growth rates and SVP ratings was found to be +.90, and statistically significant at the 99 percent confidence level, for the remaining occupations.

Hence, with the exception of clerical occupations, the correlation analysis corroborates the impressions given by the descriptive analysis. General education is becoming more important as a circumstance of employment in Louisiana. While the low-training clerical occupations exhibit high rates of employment growth, specific vocational preparation is becoming more important as a circumstance of employment for all other remaining occupations.

Do these findings indicate a precondition for structural unemployment? An optimistic view would hold that, since it _is_ employment that is increasing, some individuals _are_ securing whatever necessary skills and education that are required for employment. In this sense, the case for structural unemployment is minimized.[8] On the other hand, nothing has as yet been said about the unemployed in the analyses. It is quite possible for a large number of individuals to

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[8]See, for example, Bashir Ahamad and Mark Blaug, _The Practice of Manpower Forecasting_, (Washington: Jossey-Bass, Inc., 1973).

obtain the education and skills requisite to employment, and still other large numbers to remain structurally unemployed. In this latter sense, a more pessemistic verdict on the evidence is possible. In order for an indication of the extent to which optimism or pessimism seems warranted, evidence on the extent of unemployment by skill would be necessary.

If employment growth in highly skilled occupations is not presenting structural problems, then there would be little difference in the unemployment rates of various occupational groups. If structural barriers are important, then unemployment rates would be higher among those occupations experiencing relatively little growth in employment.

Table 5-2 compares the relative rankings of employment growth by occupation between 1960 and 1970, and rates of unemployment in 1970. In general, an inverse relationship between the two is apparent. Where growth rates in employment have been highest, unemployment rates are the lowest.

This impression is substantiated in a correlation analysis. The Spearman Rank Correlation coefficient was found to be -.71 and statistically significant at the 98 percent level of confidence. Hence, unemployment rates are higher in occupations in which employment has grown least.

If unemployment rates are higher in those occupations in which growth has been lowest then unemployment rates must be higher among the occupations in which comparatively low levels of educational

TABLE 5-2
COMPARISON OF EMPLOYMENT GROWTH AND UNEMPLOYMENT RATES

Occupational Groups	Relative Rankings	
	Employment Growth[a]	Unemployment Rate[b]
Professional, Technical, Managerial	8	1
Clerical and Kindred	6	3
Sales Workers	5	2
Craftsmen and Foremen	7	5
Operatives	4	6
Service Workers	3	7
Nonfarm Laborers	1	8
Farmers and Farm Labor	2	4

Source: Derived from Table 5-1, supra, and U.S. Bureau of the Census, U.S. Census of Population; Part 20: Louisiana, (Washington: U.S. Government Printing Office, 1970).

[a]Relative rankings of percentage change in employment, 1960-1970, expressed in terms of 1960 employment.

[b]Relative rankings of unemployment rates among various occupations, 1970.

attainment and specific job training are a circumstance of employment. This is true because, with the exception of clerical occupations, higher rates of employment growth are found in occupations involving higher levels of specific vocational preparation. Further, even including the clerical occupations, higher rates of growth in employment are found in occupations in which higher levels of formal education are a circumstance of employment. Since high growth rates are positively correlated with levels of general education and specific vocational preparation, and since unemployment rates are negatively correlated with growth rates, then unemployment rates must be higher in the occupations in which little education and specific vocational preparation are a circumstance of employment.

This is the essence of structural unemployment, and gives a pessimistic verdict some substantial weight. In general, the indirect evidence provides some necessary preconditions for the presence of structural unemployment in Louisiana.

The Direct Evidence

The available indirect evidence would suggest that the necessary preconditions for a substantial degree of structural unemployment in Louisiana. Yet, the indirect evidence is necessarily circumstantial because it is retrospective and because frictional and cyclical barriers are not taken into account. An analysis capable of determining the relative extent of structural factors as a barrier to employment, and which is capable of taking structural and cyclical

factors into account in this determination, would therefore provide some useful direct evidence.

A comparison of job vacancies and the unemployed by detailed occupational skill is one way in which such an analysis may be undertaken. If it is found that a change in occupations would have been requisite to the employment of the unemployed in Louisiana, and if it is further indicated that this change would have involved substantial reorientation in terms of education and skill, then the potential for structural barriers to be a significant cause of unemployment is established. Further, if this structural unemployment is found to be highly correlated with historical and expected trends in the occupational composition of employment, then the structural unemployment found in a typical year can be assumed to be a part of a trend of ongoing change in Louisiana.

Could the unemployed in Louisiana have found employment reasonably suited to their skills? The evidence on frictional unemployment would suggest that approximately one-third of the unemployed in a typical year could have obtained employment in their own occupation somewhere in the state or current wage levels. The extent to which structural barriers may have confronted the remaining two-thirds can be assessed by compairing the skills of surplus workers in a given occupations with the skills and educational levels associated with excess demands in other occupations.

Table 5-3 summarizes the occupational skills of nonfrictionally unemployed workers as of November, 1973. It is derived by first

TABLE 5-3
SUMMARY OF EXCESS LABOR SUPPLIES IN LOUISIANA
BY MAJOR OCCUPATIONAL GROUPS
NOVEMBER, 1973

Occupational Groups	Excess Labor Supplies	
	Number	Percent of Total
Professional, Technical, Managerial	3,663	7.4
Clerical And Sales	13,794	28.0
Services, Except Private Household	5,684	11.5
Farming, Forestry, Fisheries	--	--
Processing	641	1.3
Machine Trades	652	1.3
Bench Work	2,334	4.7
Structural Work	7,631	15.5
Miscellaneous	4,151	8.4
TOTALS	49,263[b]	78.1

Source: See text. Entries refer to totals of the specific excess supplies within particular occupations in the major classifications. Full comparisons appear in Appendix B, infra.

[b]includes nonresponse; column will therefore not add to this number.

determining the unemployed who could not have found employment in their reported occupation, for over 900 separate and distinct DOT skills, and then reporting the totals of these numbers by major DOT category.[9] The full comparisons are reported in the Appendix.

While clerical and sales occupations ranked first among the occupations in terms of frictional unemployment, they also ranked first in terms of the absolute magnitude of excess supplies. At the time of the surveys, there were 13,794 surplus clerical and sales workers. These surplus workers represented 28 percent of total nonfrictional unemployment, and 17 percent of total unemployment in the state.

The clerical category includes occupations related to stenography, typing, filing, computing and account recording, material and production recording, and information and message distribution. Surplus workers were found among clerk-typists, proofreaders, secretaries, and typists, hand bookkeepers, cashiers, computing machine work, payroll clerks, peripheral electronic data processing operators, tellers, and most of the remaining occupations.

The sales category includes saleswork related to services, commodities, and miscellaneous merchandising. Few surplus workers were found in the service sales occupations, but there were 1,297 surplus workers found in the selling of commodities.

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[9]See Chapter Two, supra. If unemployment exceeds vacancies in a given occupation then labor surplus, or excess supplies, exists.

Ranking second in terms of labor surplus at the time of the surveys were the structural work occupations. At the time of the surveys, there were 7,631 surplus structural workers. These workers represented 15.5 percent of all surplus workers, and 9.5 percent of total unemployment in the state.

The structural work category includes occupations related to metal fabricating, welding, electrical assembly and repair, painting and plastering, excavating, grading, and such construction related occupations as bricklaying, carpentry, and plumbing. The presence of surplus workers was found among boat repairmen, boilermakers, drillers, fitters, sheetmetal workers, transport equipment fabricators, metal assemblers, welders, almost all of the electrical assembly and repair occupations, and excavating occupations, and most of the construction occupations.

The service workers category ranked next highest in terms of surplus workers. At the time of the surveys, there were 5,684 surplus service workers. These individuals accounted for 11.5 percent of all labor surpluses, and 7.1 percent of total unemployment in the state.

The services category includes domestic service, food and beverage preparation, lodging services, barbering and cosmetology, amusement and recreation, protective services, and building services. Labor surpluses were found to be present among bartenders, dishwashers, waitresses and waiters, bellmen, non-domestic maids,

barbers, manicurists, massuers, all of the amusement, recreation, and miscellaneous services; and most of the apparel, protective, and building services.

An important omission from the determination of labor surplus in the service worker category is a determination of the relative importance of labor surplus among domestic service workers. A lack of data on job openings in domestic households makes it impossible to compare job openings with the extent of unemployment in these occupations, and therefore makes it impossible to determine the relative level of frictional unemployment within them.

Nevertheless, it may be speculated that a substantial degree of total unemployment among domestics is attributable to labor surplus. Given the strong decline in employment experienced in this sector in recent years, the evidence would seem to indicate that a large part of the relatively high rates of unemployment is surplus labor in nature.[10]

Ranking fourth in terms of labor surpluses was the miscellaneous category. At the time of the surveys there were 4,151 surplus workers in these occupations. These surplus workers accounted for 8.4 percent of all the labor surplus found in the state, and 5.2 percent of total unemployment.

Among the occupations included in the miscellaneous category are motor freight work, packaging and materials handling, mineral extraction, logging, the production and distribution of utlities, amusement

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[10] Supra.

and motion picture work, and graphic art work. Surplus labor was found among air transport work, chauffers, parking lot attendents, railroad transport work, service station attendents, water-transport and motor freight occupations, all of the packaging and materials handling occupations; boring, drilling, and cutting occupations, all of the logging occupations, and most of the occupations in the production and distribution of utilities; in amusement; and in graphic art work.

Professional, technical, and managerial occupations ranked fifth among the major groups in terms of labor surplus. At the time of the surveys, there were 3,663 surplus professional technical, and managerial workers. These workers accounted for 7.4 percent of total labor surpluses, and 4.6 percent of total unemployment in the state.

The professional, technical, and managerial category includes occupations in architecture and engineering, mathematics, and the physical sciences, the life and social sciences, medicine and health, education, museum and library sciences, law, religion, writing, art work, entertainment and recreation, administrative specialties, and managerial work. An indication of surplus labor within these groups has already been provided.

Bench work occupations ranked sixth among the major groups in terms of surplus labor. At the time of the surveys, there were 2,334 surplus workers in bench work occupations. These workers accounted for 4.7 percent of total labor surpluses, and 2.9 percent of total unemployment in the state.

The bench work category includes occupations delineated according to the fabrication, assembly, and repair of various products. Surplus labor was found among workers who fabricate and repair metal products, scientific and medical apparatus, photographic and optical goods, timepieces, electric equipment, and products made from assorted materials. Surplus labor was also found to be evident among painters and decorators fabricators of plastics, synthetics, and rubber products, wood products, sand, stone, clay, and glass products, textile products, and paper products.

Ranking next to last among the major occupational groups in terms of surplus labor was the machines trades category. There were 652 surplus workers found in this category. These surplus workers represented approximately 1.3 percent of the total number of surplus workers, and 0.8 percent of the total unemployed.

The machines trades category includes occupations related to metal working, mechanical repairing, paperworking, printing, wood machining, and textile machine work. In the metalworking occupations, surplus labor was found among production machine operators, metal sawyers, tool and tie makers, brake operators, extruding and drawing workers, fabricators, forgers, shear operators, and patternmakers. In the mechanical repairing occupations, labor surpluses were apparent among automobile mechanics, aircraft mechanics, general industry machine repairmen, millmen, sewing machine repairmen, and small engine repairmen. All unemployment in the paperworking category was found to be surplus unemployment. Surplus labor was found

in virtually every occupation in the remaining machine trades occupations.

Finally, the processing occupations ranked last in terms of surplus labor. There were 641 surplus workers in the processing occupations. These surplus workers represented approximately 1.3 percent of total surplus unemployment and 0.8 percent of total unemployment in the state.

The processing occupations include occupations in the processing of metal, ore, food, paper, petroleum, chemicals, wood and wood products; stone, clay, and glass products, and leather and textile products. In metal processing, surplus labor was found among dip platers and sandblasters. With the exception of casters, surplus labor was found in all of the ore-refining occupations. With the exception of bakers, butchers, and factory helpers, where unemployment was entirely frictional, there was surplus labor in all of the food products processing occupations. In paper processing, all unemployment was found to be nonfrictional. In petroleum processing, surplus labor was found in distilling and in grinding and crushing occupations. In chemical processing, all unemployment was nonfrictional. The same was found to be true for occupations in the processing of stone, clay, and glass products, and in the processing of leather and textile products.

An important omission from the occupations just described are the farming, forestry, and fishing occupations. Given the dramatic

decline in employment over the past decade, it may be speculated that a substantial number of surplus workers are in at least the farming occupations. The fishery occupations tend to be composed largely of the self-employed, and would therefore not be relevant to a "surplus worker identification". Finally, the forestry occupations may be a source of surplus labor, as the logging occupations were found to exhibit surplus labor.

A general perspective on the education and skills possessed by the unemployed may be provided in comparisons of relative levels of excess supplies and the GED and SVP ratings of the occupational skills known to be possessed by surplus workers. If unemployed individuals would have found employment in their own occupation impossible, and if education and skill were severe barriers to employment for these workers, then general evidence of a concentration of labor surpluses in occupations associated with low levels of education and training time would be apparent. The DOT occupational scheme is capable of providing such a general perspective. Each DOT occupation is rated according to the general level of education associated with that particular kind of work. Each is rated according to the estimated length of time that it appears necessary for the attainment of proficiency in the occupation. It is possible to group the excess supplies found in the specific occupations just described, according to common levels of general educational development (GED) and specific vocational preparation (SVP).

Table 5-4 groups the excess labor supplies by common GED ratings. The greatest concentration of excess labor was found to be in GED level three. R. S. Eckaus and James G. Scoville have estimated that this GED level is associated with approximately seven years of formal education.[11] The next highest concentrations of excess labor supplies were found to be in occupations rated five and four. These occupations are estimated to require twelve and ten years of formal education, respectively.[12] Finally, only 6.3 percent of the excess labor supplies were in occupations estimated to require 16 years of formal education, and a little over 1 percent were in occupations estimated to require 4 years of schooling.[13] Overall, more than two-thirds of the excess labor supplies determined in the comparisons are found to lie in occupations rated below GED level five. This means that over two-thirds of the excess labor supplies were in occupations in which a high school education is not estimated to be a circumstance of employment.

Table 5-5 groups the surplus workers by SVP ratings. The greatest concentration of excess labor supplies was found to be in

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[11]R. S. Eckaus, "Economic Criteria for Education and Training," Review of Economics and Statistics (May, 1964), pp. 181-190; and James G. Scoville, "Education and Training Requirements for Occupations," Review of Economics and Statistics, (November, 1966), pp. 387-392.

[12]Scoville, op. cit.

[13]Ibid.

TABLE 5-4
EXCESS LABOR SUPPLIES BY GED RATINGS
NOVEMBER, 1973

General Educational Development:		Excess Labor Supplies	
Rating	School Year Equivalent	Number	Percent of Total
1	0	0	0.0
2	4	492	1.2
3	7	17,499	42.8
4	10	9,586	23.4
5	12	10,759	26.3
6	16	2,558	6.3

Source: See text.

TABLE 5-5
EXCESS LABOR SUPPLIES BY SVP RATINGS
NOVEMBER, 1973

Specific Vocational Preparation		Excess Labor Supplies	
Rating	Estimated Training Time	Number	Percent of Total
1	Less Than 30 Days	277	0.7
2	30 Days - 3 Months	3,443	8.4
3	3-6 Months	564	1.4
4	6 Months - 1 Year	13,925	34.0
5	1 - 2 Years	2,814	6.9
6	2 - 4 Years	11,595	28.3
7	Over 4 Years	8,323	20.3

Source: See text.

occupations for which it is estimated that six months to a year of specific training is required in order to attain proficiency. The second highest concentration was found to lie in occupations estimated to require two to four years of training time, followed by those estimated to require over four years, one to three months, one to two years, and less than thirty days. When comparisons are made in greater detail than Table 5-5 allows, negative correlations are discovered between excess labor supplies and SVP ratings.[14]

The general perspective afforded by comparisons of relative levels of surplus labor by levels of general educational development and specific vocational preparation is somewhat pessimistic. With higher concentrations of surplus labor in low GED and SVP-rated occupations, a potential for education and skill as barriers to employment is indicated. Further investigation requires an analysis of excess labor demands.

For the surplus workers just described, a change in occupations would appear to have been necessary if the total level of Louisiana unemployment were to have been reduced. A determination of the extent to which this change in occupations would have been possible, and a determination of the extent to which an upgrading in terms of education and skills would have been required in order to realize this possibility, are of interest. These determinations may be undertaken in a comparison of the unemployed and existing job openings by detailed occupational skill.

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[14] Infra.

Table 5-6 summarizes the extent of labor shortages, or excess demands, in Louisiana as of November, 1973. It was derived by first determining the extent to which job vacancies were matched by unemployed workers. This frictional unemployment was then subtracted from existing vacancies. This was done for over 900 distinct DOT occupations. The totals of these excess demands are reported by major DOT categories.[15] The full comparisons are reported in the Appendix.

The evidence presented in Table 5-6 suggests that of the 49,263 individuals who could not have found employment in their own occupations, 38,816 could have been confronted by unfilled job openings in other occupations. These structurally unemployed individuals represented 45.7 percent of the unemployed, and accounted for 2.6 percent of the Louisiana labor force.

How distinct from the skills of the structurally unemployed were the skills associated with these job openings? An indication may be provided in a description of the nature of the excess demands found at the time of the surveys.

Structural work occupations ranked highest in terms of the level of excess demands in Louisiana. There were a total of 9,831 unfilled jobs in structural work occupations that could not immediately have

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[15]See Chapter Two, supra. If vacancies are greater than unemployment in a given occupation, then there will be excess demands, or labor shortage.

TABLE 5-6
SUMMARY OF EXCESS LABOR DEMANDS IN LOUISIANA
BY MAJOR OCCUPATIONAL GROUP
NOVEMBER, 1973

Occupational Groups	Excess Labor Demands	
	Number	Percent of Total
Professional, Technical, Managerial	8,697	22.4
Clerical and Sales	4,941	12.7
Services, Except Private Household	3,970	10.2
Farming, Forestry, Fisheries	--	--
Processing	5,952	15.3
Machine Trades	1,971	5.1
Bench Work	326	0.8
Structural Work	9,831	25.3
Miscellaneous	1,305	3.3
TOTAL	38,816	

Source: see text. Entries refer to totals of the specific excess demands in particular occupations within the major classifications listed.

been filled by existing qualified labor supplies residing in the state. These unfilled jobs accounted for 25.3 percent of total excess demands.

In structural occupations, excess demands were found for metal subassembly assemblers, automobile body repairmen, some fitters, general construction helpers, layout workers, some sheetmetal workers, shipfitters, steel workers, welders, electricians, cement masons, construction and maintenance painters, dry wall applicators, and automobile painters. Excess demands were also found to be present for maintenance men, bricklayers, journeymen caprenters, carpet or floor layers, glaziers, plumbers and pipefitters, roustabouts, and siders.[16]

Professional, technical, and managerial occupations ranked second in terms of excess demands in Louisiana. There were a total of 8,697 unfilled jobs in these occupations that could not have been immediately taken by existing qualified labor supplies residing in the state. These unfilled jobs accounted for 22.4 percent of total excess demands in the state.

Among the professional, technical, and managerial occupations, labor shortages were found for virtually every archetictural and

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[16]The fact that structural work ranks high in terms of both excess demands and supplies may be misleading. The excess demands and supplies are for <u>different</u> skills <u>within</u> the major title.

engineering occupation,[17] and chemists, geologists, laboratory technicians, project directors, applied statisticians, and agronomists. In the medicine and health category, excess demands were found for community health workers, cytotechnologists, dietition/nutritionists, E.K.G. technicians, environmental health technicians, health educators, medical assistants, and medical technologists. Within the health category, excess demands were also found for nurse educators, Licensed Practical nurses, Registered Nurses, occupational therapists and aides, optometrists, pharmacists, physical therapists, radiologist technicians, recreational therapists, rehabilitation counselors, sanitarians, and speech pathologists. In education, there were excess demands for college and university faculty, school administrators, special education teachers, and vocational-technical education teachers. In the writing occupations, excess demands were evident for copy readers and copy writers, and for reporters and correspondents. In art work, excess demands for photographers and cameramen were found. In administrative specialties, there were excess demands for accounting and auditing, claim examiners, cost estimators, credit managers, estate planners and underwriters, office managers, public relations specialists, safety inspectors, special insurance agents, and title clerks. Labor shortages in other professional, technical, and managerial occupations included unfilled jobs in cashiering,

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[17]The only exceptions were construction engineer, civil engineers, map and civil draftsmen, aeronautical and space engineers, mining engineers, optical technicians, and surveyors.

field and craft supervision, loan officiating, medical directing, district managers, and aircraft piloting and navigating. Finally, there were also excess demands for boat captains, boat mates, boat pilots, marine engineers, leasemen, recreation leaders, and social workers.

Processing occupations ranked third among the major groups in terms of excess demands. There were 5,952 unfilled jobs in processing occupations that could not have been immediately filled by existing labor qualified supplies residing in the state. These unfilled jobs accounted for 25.3 percent of total excess demands.

Within the processing category, there were excess demands found in electro plating, casting, and for bakers, butchers, factory helpers, chemical operators, concrete and stone fabricating. There was also an excess demand for unspecialized laborers in processing.

Clerical and sales occupations ranked fourth among the major groups in terms of excess demands. There were 4,941 job openings in clerical and sales occupations that could not have been immediately filled by existing labor supplies know to possess these skills. These unfilled job openings accounted for 12.7 percent of total excess demands in the state.

In stenography, typing, and filing there were excess demands for claims clerks, personnel clerks, and stenographers. In computing and account recording, there were excess demands for accounting clerks, machine bookkeepers, general office clerks, key-punch operators,

tabulating machine operators, and transit clerks. There were no excess demands apparent in occupations related to material and production recording, and with the exception of meter readers, there were no excess demands found in information and message distribution. Of the remaining clerical occupations, there were excess demands apparent for claims adjusters, loan closers, and medical records clerks.

In saleswork, there were excess demands found for saleswork related to service selling services, but no excess demands found for commodity salesmen. Excess demands were found for real estate brokers and for insurance and securities salesmen. In miscellaneous merchandising, there were excess demands for retail department managers, sales clerks, and routemen.

Services, excepting private household services, ranked fifth in terms of excess demands in Louisiana. There were 3,970 job openings in service occupations that could not have been filled by unemployed individuals reporting these skills. These unfilled jobs represented 10.2 percent of total excess demands in the state.

In food and beverage preparation and service, there were excess demands found for chefs, cooks, food service supervisors, and hostesses. In lodging services, there were excess demands for nondomestic housekeepers. In barbering, cosmetology, and related services, there were excess demands for cosmetologists and embalmers. Other occupations in the services category exhibiting excess demands were firemen and security guards.

Machine trades occupations ranked sixth in terms of excess demands. There were a total of 1,971 unfilled jobs in machines trades that could not have been filled by unemployed individuals known to possess the relevant skills. These unfilled jobs accounted for 5.1 percent of the total excess demands in the state.

Within the machine trades category, labor shortages were found for general inspectors, machine shop layout men, machinists, production machine operators, template makers, metal fabricators, press operators, and patternmakers. Excess demands were also evident for air conditioning and refrigeration mechanics, jet engine mechanics, diesel mechanics, farm equipment mechanics, textile maintenance mechanics, and marine mechanics. Other occupations in the machine trades category in which excess demands were apparent include woodworking millmen, office machine servicemen, and millwrights.

The miscellaneous DOT category ranked next to last in terms of excess demands. There were a total of 1,305 unfilled jobs in the miscellaneous category that could not have been filled by unemployed individuals reporting the relevant skills. These unfilled jobs accounted for 3.3 percent of total excess demands in the state.

Within the miscellaneous category, there were excess demands apparent for bus drivers, deck hands, gaugers, longshoremen, oil pumpers, and taxi drivers. In the packaging and materials handling occupations, excess demands were evident only for cranemen, hoistmen, derrickmen, and riggers. In mineral extraction work, there were excess demands for casers, petroleum and gas derrickmen, rotary

drill operators, oil well service workers, petroleum technical operators, and well pullers. There were no excess demands found in logging. In the production and distribution of utilities there were excess demands for control room operators, dispatchers, stationary engineers, and power plant operators. The only remaining occupations in the miscellaneous category showing evidence of excess demands were bookbinding and photolithography.

Finally, bench work occupations ranked last in terms of excess demands in Louisiana. There were a total of 326 job openings that could not be filled by unemployed workers known to possess the relevant skills. Occupations within the category exhibiting excess demands were engraving and etching, jewelry repair, dental laboratory technology, relay testing, electric motor repair, radio and television repair, furniture finishing, textile cutting, and furniture upholstery. These excess demands accounted for less than 1 percent of total excess demands in the state.

The excess demands just described represent employment possibilities for the surplus workers described earlier. The evidence indicates that many jobs were open to surplus workers in Louisiana, but securing these jobs would have required an occupational change.

Would this occupational change have required higher educational attainment and time spent in specific vocational preparation? If education and occupational skill are significant barriers confronting the structurally unemployed, this question would be answered in the affirmative.

A general perspective on the formal education and job-specific skills estimated to be required in order to fill the job vacancies just described may be provided in comparisons of relative levels of excess demands and the GED and SVP ratings of occupations exhibiting excess demands. If education and job training were both barriers to the employment of the unemployed, then general evidence of a concentration of labor shortages in occupations associated with high levels of education and training would be apparent.

Table 5-7 groups the excess demands by common GED ratings. The greatest concentration of labor shortages appears to be in GED level four. This level is associated with approximately ten years of formal education, according to estimates made by R. S. Eckaus and James G. Scoville.[18] The next highest concentrations of excess labor demands were discovered in occupations rated GED level five. These occupations are estimated to require a high school education.[19] Third in importance in terms of the concentration of labor shortages was GED level six. The occupations rated in this level have been estimated to require sixteen years of formal education or, in other words, a college education.[20] Finally, there were very few excess demands in the lower GED ratings. Only 3.5 percent of all the excess demands

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[18] R. S. Eckaus, op. cit.; and James G. Scoville, op. cit.

[19] Ibid.

[20] Scoville, op. cit.

TABLE 5-7
EXCESS LABOR DEMANDS BY GED RATINGS
NOVEMBER, 1973

General Educational Development		Excess Labor Demands	
Rating	School-Year Equivalent	Number	Percent of Total
1	0	0	0.0
2	4	82	0.2
3	7	1,351	3.5
4	10	18,880	48.6
5	12	12,476	32.1
6	16	6,032	15.5

Source: See text.

were found in occupations associated with seven years of formal education, and only two-tenths of one percent of the total excess demands were found in occupations associated with four years of formal education or less. Overall, 96 percent of the excess labor demands were discovered in occupations associated with ten or more years of formal education, and almost half of the excess labor demands were found to be in occupations in which it has been estimated that at least a high school education is required as a condition of employment.[21]

These findings compare unfavorably with the GED ratings of occupations in which labor surpluses were found. While 42.8 percent of excess labor supplies were found in occupations associated with seven years of formal education, only 3.5 percent of the total excess demands were discovered in other occupations which are estimated to require this level of schooling. Over 48 percent of excess demands were concentrated in occupations estimated to require ten years of formal education, compared with 23.4 percent of excess labor supplies. A third of the labor shortages were in occupations estimated to require a high school education, while only a fourth of the labor surpluses were in other occupations associated with twelve years of schooling. While 15.5 percent of the excess labor demands were in occupations associated with a college education, less than half of this proportion (6.3 percent) was found among excess labor supplies.

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[21] Ibid.

The overall conclusion afforded by the general perspectives of excess demands and supplies of labor by GED ratings, and comparisons between these perspectives, is one of guarded pessimism. Attempting to estimate "requirements" of different jobs is a tricky procedure, and necessarily imprecise.[22] According to the established ratings that are available, however, there are significant differences apparent between the education associated with surplus labor in Louisiana, and the estimated educational requirements of the job openings confronting this surplus labor. This suggests a strong potential for educational deficiencies to have been a significant barrier to the employment of these surplus workers.

An indication of the possible extent to which specific job training would have been necessary if the surplus workers were to have obtained employment in the labor shortage occupations can be provided. The extent to which job training would have been required for employment given existing patterns in occupational demand can be established in a comparison of relative levels of excess demands with relative SVP ratings.

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[22]Sidney A. Fine, "The Use of the Dictionary of Occupational Titles as a source of estimates of Educational and Training Requirements," Journal of Human Resources, (Summer, 1968), pp. 363-375. The ordinal comparisons made in this study are consistent with Fine's assessment of the legitimate applications of the SVP and GED ratings.

Table 5-8 groups the excess demands by common SVP ratings. The greatest concentrations of excess demands was found to be in occupations which are estimated to require the longest period of specific vocational preparation. The greatest single concentration of excess demands found in occupations estimated to require over four years of specific vocational preparation, with 35.6 percent of all labor shortages accounted for. With the exceptions of SVP levels four and five, the concentrations of excess demands consistently declines with job training levels thereafter. A general perspective can be provided by noting that over two-thirds of the jobs exhibiting labor shortages in Louisiana are associated with more than a year of specific job training.

The general conclusion based on the available evidence would indicate that education and skill are, indeed, probable strong barriers to employment confronting the unemployed in Louisiana. The concentration of excess labor supplies in occupations rated low in terms of training and education, and the concentration of excess labor supplies in occupations rated high in terms of these characteristics, suggests structural barriers to employment are present in significant strength. The available direct evidence may be generalized further.

If education and skill are significant barriers to employment, it would be expected that a positive correlation exists between levels of excess demand and levels of education and training time.

TABLE 5-8
EXCESS LABOR DEMANDS BY SVP RATINGS
NOVEMBER, 1973

Specific Vocational Preparation		Excess Labor Demands	
Rating	Estimated Training Time	Number	Percent of Total
1	Less Than 30 Days	57	0.2
2	30 Days - 3 Months	840	2.1
3	3 - 6 Months	4,468	11.5
4	6 Months - 1 Year	5,549	14.3
5	1 - 2 Years	3,196	8.2
6	2 - 4 Years	10,907	28.1
7	Over 4 Years	13,803	35.6

Source: See text.

That is, if it is hard for the unemployed to find jobs because of limited educational attainment or skill, then there would be more unfilled jobs in the occupations requiring higher levels of training and education than in occupations requiring lower levels of training and education. Excess demands would be concentrated in occupations which are rated highest in terms of education and training and a large and positive correlation coefficient between levels of excess labor demand and the GED and SVP ratings would be apparent.

Further, if it is hard for the unemployed to find jobs because the education and training required for jobs are high, then it would be because the unemployed do not possess the appropriate education, and have received little job training. Surplus labor would be concentrated in occupations which are rated low in terms of education and training, and a negative correlation coefficient between levels of excess labor supplies and the GED and SVP ratings would be apparent.

Table 5-9 reports the correlation coefficients found between excess labor demands, excess labor supplies, and the GED and SVP ratings. All coefficients are of the expected sign, and generally support a hypothesis of substantial structural unemployment in Louisiana attributable to educational and skill deficiencies.

These findings are based on comparisons using data collected in November of 1973. Though affording substantial detail, the data only allow static comparisons. It would therefore be desirable to compare these findings with the indirect dynamic evidence.

TABLE 5-9
GED AND SVP CORRELATIONS
WITH EXCESS LABOR DEMANDS AND SUPPLIES
NOVEMBER, 1973

Variable	Correlations	
	GED Ratings	SVP Ratings
Excess Labor Demands	+.77[a]	+.89[a]
Excess Labor Supplies	-.20[b]	-.26[c]

[a]Significant at the 95 percent level of confidence; n = 6 for GED correlations and n = 7 for SVP correlations.

[b]Significant at the 90 percent level of confidence; n = 78.

[c]Significant at the 98 percent level of confidence; n = 78.

If the structural unemployment found in the present study is not the result of long-term changes in the occupational composition of demand, there would be little correlation between the excess demands found and long-term trends in employment for particular occupations. If, however, there was found to be a high correlation between the relative degrees of excess demands for particular occupational categories and employment growth over the long run in those categories, then there would be evidence in support of the structural hypothesis. Since it takes time to recognize and adapt to changing occupational demands, the excess demands could be expected to be "persistent" in that education skill adjustments on the part of the unemployed would be necessary.

Table 5-10 shows a comparison of structural unemployment in Louisiana as of November, 1973 with historical employment trends reported in the census and predicted future trends in employment according to projections made on the basis of industrial employment trends. Comparisons of structural unemployment found as of November, 1973 with both historical and expected occupational employment trends reveals some high correlations.[23]

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[23]It was necessary to convert from DOT to BLS occupational groups. The conversion made use of a tape provided by the Louisiana Office of State Planning which converted the DOT scheme to the census scheme. The conversions used were based on those found in Office of Management and Budget, Statistical Policy and Management Information Systems Division, Occupations of the Labor Force According to the Dictionary of Occupational Titles, Statistical Evaluation Report No. 9, (Washington: U.S. Government Printing Office, 1971). Conversion to BLS occupations was undertaken by the present author.

TABLE 5-10
COMPARISON OF STRUCTURAL UNEMPLOYMENT
WITH HISTORICAL AND PROJECTED EMPLOYMENT TRENDS

	HISTORICAL TREND 1960-1970		EXCESS DEMAND 1973		FORECASTED 1970-1980	
	Percent[a]	Rank	Percent[b]	Rank	Percent[c]	Rank
Professional, Technical, Managerial	26.3	6	4.0	5	24.9	5
Clerical and Sales	23.0	5	3.9	44	29.8	6
Craftsmen	22.9	4	5.2	6	20.6	4
Operatives	16.2	2	1.8	2	12.5	2
Services, except Private Household	16.5	3	3.2	3	19.2	3
Private Household Workers	2.8		---[d]		-4.4	
Laborers, except Farm	7.2	1	0.1	1	-3.9	1
Farmers and Farm Workers	-77.4		---[d]		-16.9	

[a]Change in employment, as reported in Detailed Characteristics, Part 20 of the Census; expressed as a percentage of 1970 employment. Figures converted to BLS occupational classifications.

[b]Expressed as percentage of 1973 employment found in LOTIS survey.

[c]Expected employment change expressed as percentage of 1970 employment. Based on forecast using techniques found in Tomorrow's Manpower Needs, BLS Bulletin No. 1769, (Washington, D.C.: U.S. Government Printing Office, 1973); and reported in Meeting Louisiana's Need for Career and Vocational-Technical Education, (Baton Rouge, Louisiana: Public Affairs Research Council of Louisiana, 1973), pp. 143-144.

[d]Comparisons not undertaken due to unreliability or nonexistance of data. See the discussion in Chapter Two, supra.

If the structural unemployment found for November, 1973, is not temporary but indicative of long-term historical trends it would be expected that occupations ranking high in terms of excess demands would also rank high in terms of percentage increases in employment over the long run. The Spearman Rank Correlation Coefficient for excess demand as a percentage of 1973 employment and percentage increases in employment between 1960 and 1970 was found to be .83, and statistically significant at the 98 percent level of confidence.

If the projected patterns of occupational employment are indications of potential future structural unemployment, it would be expected that occupations ranking high in terms of expected percentage increase in employment would also rank high in terms of excess demands. The correlation coefficient between excess demand as a percentage of 1973 employment and expected percentage increases in employment between 1970 and 1980 was found to be .78, and statistically significant at the 95 percent level of confidence.

Thus, the available evidence indicates that the structural imbalances found in the present study are representative of past trends in the occupational composition of employment in Louisiana, and that these trends may be expected to continue into the future. The inference must be that the structural unemployment found in the present study is not a temporary phenomenon, and that the circumstantial evidence presented in forecasts of the occupational

skill content of employment in Louisiana are associated with some potentially substantial skill reorientation among the unemployed in Louisiana if they are to find employment within the state.

As there may be many factors which could theoretically impede the occupational mobility of the unemployed, the structural imbalances observed in the samples may have arisen from more than simply a lack of adaptation on the part of the unemployed in terms of occupational skill. Yet, the evidence indicates that, whatever the reason, there would have had to have been a substantial reorientation in terms of occupational skill in order for a large percentage of the Louisiana unemployed to have secured jobs. The evidence, both direct and indirect would suggest that this reorientation would have involved formal education and job specific training.

Some Implications

Substantial costs, in the form of foregone output and personal income, can be expected to result from long-term unemployment in Louisiana. A large proportion of this long-term unemployment can be directly attributed to structural unemployment arising from educational and skill deficiencies among the Louisiana unemployed.

Existing institutional arrangements make possible a reduction of the structural component of Louisiana unemployment. Funding and facilities are available for formal education and specific job training through the Comprehensive Employment and Training Act of 1973,

the Manpower Development and Training Act of 1962, and the expanded system of Vocational and Technical Education in Louisiana. Those in charge of the allocation of resources in these arrangements should take cognizance of the excess demands found, and comb unemployment lines for potential trainees.

Sar Levitan and Joyce K. Zickler have found that it is often the Governor of a particular state who determines how manpower revenue sharing funds are allocated, in de facto terms if not in de jure terms.[24] The reduction of unemployment in Louisiana would appear to require that the Governor's Office of Federal Affairs and Special Projects establish a tenor of job-training as a general strategy in existing programs.[25]

Many of the arguments advanced by critics of job training programs do not appear to receive a great deal of empirical support from the available Louisiana data. It appears possible to provide job training without the necessity of expanding job opportunities: the jobs are there. It appears possible to train individuals for employment without an expectation of depressed wages. Finally, and

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[24]Sar A Levitan and Joyce K. Zickler, The Quest for a Federal Manpower Partnership, (Cambridge, Mass.: Harvard University Press, 1974).

[25]The Office has minimized the potential for job-training as a possible way to reduce unemployment in Louisiana, deeming it the "least productive" of the alternatives. The present study would appear to indicate otherwise. See Development of a Statewide Program to Plan and Coordinate Economic Growth, (Baton Rouge: Governor's Office of Federal Affairs and Special Projects, 1975), pp. 42.

perhaps most importantly, it appears possible to reduce the overall level of unemployment in Louisiana through job training, because no displacement of employed individuals would have necessarily occurred. It appears possible to train people for jobs in the state without having the necessary result be a changing of the employment status of two individuals.

CHAPTER SIX

CYCLICAL UNEMPLOYMENT IN LOUISIANA

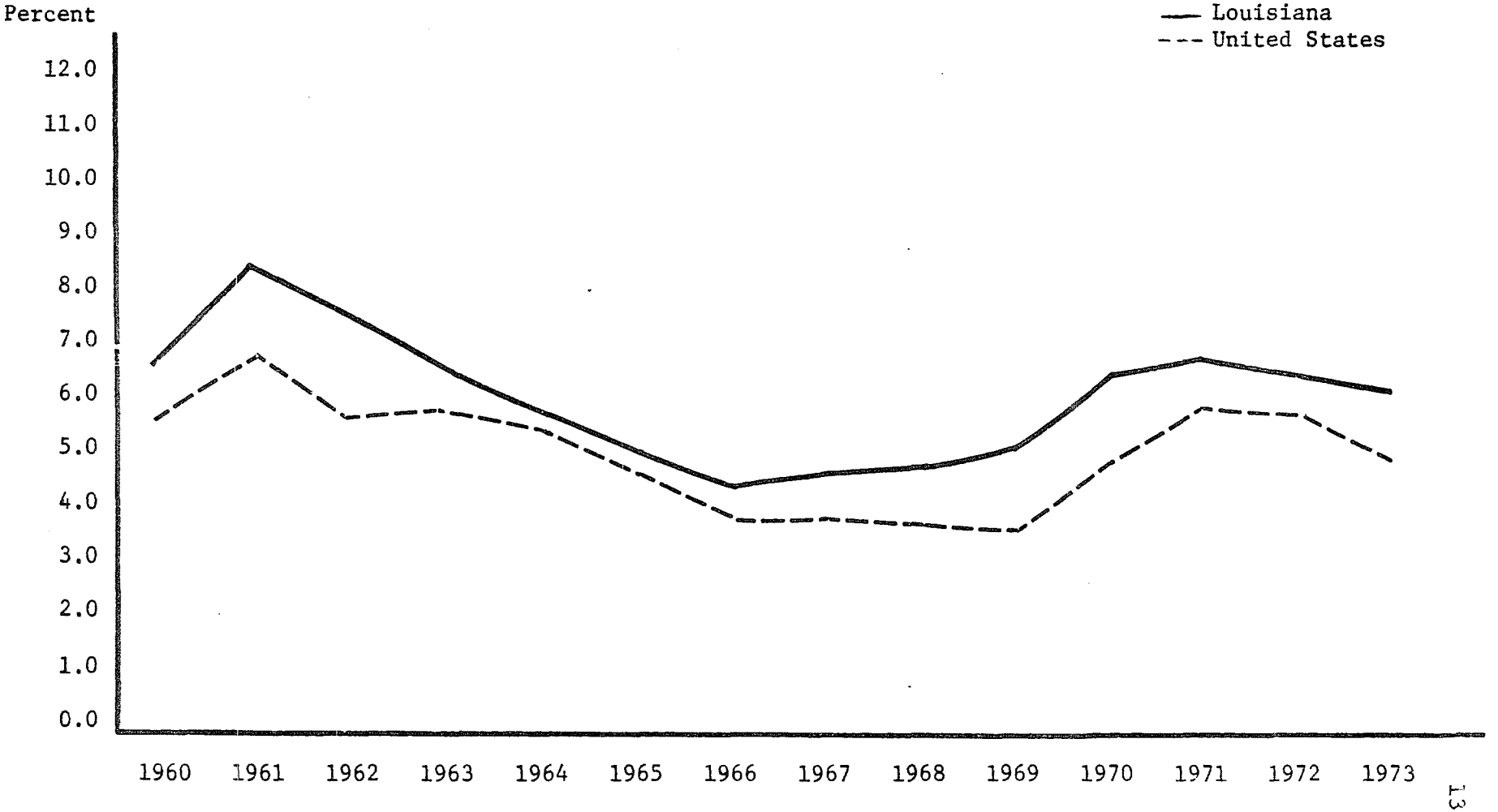
To what extent are cyclical factors responsible for Louisiana unemployment? Cyclical unemployment is a characteristic of the business cycle (Figure 2). The presence of cyclical unemployment indicates a possible need for temporary public service employment as a policy measure. The extent to which cyclical factors may have been a barrier to the employment of the unemployed at the time of the comparisons made in this study is therefore of interest.

In this study, cyclical unemployment represents joblessness arising from an absolute lack of job openings at current wage rates. Indirect evidence on cyclical unemployment will be provided in an analysis of job losers in Louisiana. The direct evidence will be provided in an examination of the extent to which total job vacancies matched the total unemployed as of November, 1973.

The Indirect Evidence

As with frictional and structural types of unemployment, indirect evidence on the relative extent of cyclical unemployment may be provided in an examination of preconditions. Analysis of any factor which indicates the extent of an absolute shortage of job openings could be expected to establish such preconditions.

Figure 6-1
Swings in Unemployment for the U.S. and Louisiana
1960-1973



Source: U.S. Department of Commerce, Statistical Abstract of the United States, 1965, 1971, 1974.

A common indirect measure of cyclical unemployment is the proportion of the unemployed who have lost jobs.[1] If the job thus lost is not available to other jobseekers, but is nonexistent, a precondition for cyclical unemployment is established.

The available evidence indicates that as of November, 1973, there were 22,540 individuals who had just lost their jobs and whose former jobs were available to no one in the state at current wage rates.[2] These individuals represented 28.0 percent of the unemployed, and approximately 1.6 percentage points in the state's 5.8 percent rate of unemployment. Whether these individuals could have found employment in thier own occupation or in any other occupation in a short period of time cannot be determined from this data.[3]

In general, the indirect evidence on cyclical unemployment provides a necessary, but not sufficient, case for the relative magnitude of cyclical unemployment. An individual losing a job, even though the job is available to no one else, may have faced frictional or structural barriers to employment as easily as cyclical barriers.

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[1]Geoffrey H. Moore, Recession-Related Unemployment, (Washington: American Enterprise Institute for Public Policy, 1975).

[2]Calculated from data provided by Louisiana Office of State Planning.

[3]If Feldstein is right, and the vast majority of these job losers are only on temporary layoff, then there is little to worry about. Yet, the "vast majority" of those unemployed in the sample wanted to change jobs. See Martin Feldstein, "The Importance of Temporary Layoffs: An Empirical Analysis," Brookings Papers on Economic Activity, (3:1975), and Chapter Four, supra.

A new job may have been available, either suited or not suited to the skills of the job loser. Therefore, some useful information on preconditions for cyclical unemployment are established through the indirect approach, but a decisive separation of cyclical from frictional and structural types of unemployment requires more evidence.

The Direct Evidence

Direct evidence on the extent of cyclical unemployment in Louisians can be provided in a comparison of total job vacancies and total unemployed. If cyclical unemployment is present, then its magnitude may be determined as the difference between total vacancies and total unemployment.[4] This difference would give the relative strength of cyclical unemployment at any point in time through a determination of the extent to which lack of job openings represented a barrier to employment.

Table 6-1 compares total job openings and unemployment in Louisiana, using the available data. The available evidence indicates that of the 49,263 unemployed persons who could not have found employment in their own occupations in November of 1973, there were 12,447 unemployed persons who would have found it impossible to secure employment in any occupation within the state. These individuals represented 15.5 percent of the unemployed, and accounted for 0.9 of a percentage point in the state's 5.8 percent of unemployment at that time.

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[4]See Chapter Two, supra.

TABLE 6-1
CYCLICAL UNEMPLOYMENT IN LOUISIANA
NOVEMBER, 1973

Total Unemployment	80,100
Total Job Openings[a]	68,053
Cyclical Unemployment	12,047

Source: See text.

[a]excluding openings on farms or in households.

Since the point in time at which the data were collected, total unemployment in Louisiana has risen.[5] Several studies have indicated that job vacancies decline when unemployment rises.[6] It is therefore almost certainly the case that cyclical unemployment has increased in relative importance since 1973 when and the lower 5.8 percent rate of unemployment was observed.

Some Implications

In general, cyclical unemployment in Louisiana can be expected to have resulted in foregone output, personal income, and consumption. The economic costs are capable of being reduced through public service employment.

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[5]Louisiana Department of Employment Security.

[6]See the references cited in Charles Holt, "Job Search, Phillips' Wage Relation, and Union Influence: Theory and Evidence," in Edmund Phelps, ed., Microeconomic Foundations of Inflation and Employment Theory (New York: W. W. Norton and Co., 1970).

Under the Economic Development and Public Works Act or under Title III of the Comprehensive Employment and Training Act, funds are available for the purposes of reducing the level of cyclical unemployment in Louisiana. These funds should be used to reduce the cyclical unemployment found in the present study, and the higher levels of cyclical unemployment which may be expected when total unemployment is higher.

The case for public service employment, however, is not a strong one compared with the alternatives. In a relative ranking of the likely effectiveness of public policy alternatives, public service employment ranks dead last behind job training (1st) and information services (2nd). Public service employment should not be regarded as a quick panacea for unemployment in Louisiana, for it is not needed as much as the alternatives, given an unemployment rate of 5.8 percent.

These public policy implications obtain for overall unemployment. The relative strengths of frictional, structural, and cyclical barriers might be expected to differ for different demographic groups comprising the unemployed. If so, an equity perspective on the distribution of unemployment among these groups would require an identification of the nature of the barriers specific to a particular group if public policy is to help.

CHAPTER SEVEN

DISTRIBUTIONAL EFFECTS: THE DEMOGRAPHIC INCIDENCE OF FRICTIONAL, STRUCTURAL, AND CYCLICAL FACTORS IN LOUISIANA UNEMPLOYMENT

Are demographic groups comprising the Louisiana unemployed confronted by frictional, structural, and cyclical barriers to employment to the same extent? Public policy alternatives have been designed to ameliorate inequities in the distribution of unemployment among particular groups, such as nonwhites, who experience above-average rates of unemployment.[1] As these public policy alternatives involve removing frictional, structural, and cyclical barriers to employment, the incidence of these barriers among different groups is of interest.

The relative incidence of the three factors among different groups is examined in the present chapter. The general format of the study is followed. The incidence of the three factors is assessed in terms of both the indirect measures and the direct measures.

The Demographic Incidence of Frictional Unemployment in Louisiana

What is the relative importance of frictional unemployment to different demographic groups? An examination of the incidence of

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[1] Chapter One, supra.

short-term unemployment, and an examination of the relative importance voluntary indicators, may provide some indirect evidence on this question for different race and sex groups. An examination of the demographic correlates of overall frictional unemployment can provide the direct evidence.

The Indirect Evidence

Indirect evidence on the relative importance of frictional unemployment for different race and sex groups may be provided in examinations of short-term unemployment and of some voluntary reasons for unemployment. While these examinations cannot provide sufficient evidence for frictional unemployment, they are useful in establishing some necessary preconditions. They are therefore useful in augmenting more conclusive measures based on comparisons of job vacancies and the unemployed by detailed occupational skill.

If frictional unemployment is comparatively higher among a particular group compared to another group, it would be expected that the incidence of short-term unemployment would similarly be comparatively higher. Larger percentages of groups confronted by frictional barriers to a comparatively higher extent would be expected to be unemployed for comparatively short periods of time.

Table 7-1 provides evidence on the percentages of different race and sex groups who reported "short-term" unemployment prior to the

November, 1973 surveys.[2] As the table indicates, nonwhites appear to experience short term unemployment in significantly smaller proportions

TABLE 7-1
SHORT-TERM UNEMPLOYMENT IN LOUISIANA
BY RACE AND SEX
NOVEMBER, 1973

RACE	SEX	
	MALE	FEMALE
WHITE	78.0	72.0
NONWHITE	67.0	40.0

Source: Calculated from data provided by Louisiana Office of State Planning. Entries refer to rounded percentages of unemployed group who had been unemployed for less than one month prior to the survey.

when compared to their white counterparts. Further, females appear to experience short-term unemployment to a lesser extent than their male counterparts.

The evidence on duration would suggest that frictional barriers are generally of more significant to whites compared with nonwhites, and generally of greater significance for males than for females.[3] This conclusion must be qualified, however: there is no evidence on

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[2]"Short-term unemployment" follows the convention of assigning anyone experiencing unemployment for less than 30 days into this category. See Chapter Four, supra.

[3]This is consistent with other studies. See footnote 6, infra.

the length of time that the unemployed remained jobless subsequent to the interview.

As another indication of the relative importance of frictional barriers for different groups, an analysis of some voluntary "reasons" for unemployment may be undertaken. If an individual is frictionally unemployed, it may be because a former job was left because of a desire for a salary increase, a change in personal qualifications, or the availability of a new job.

Table 7-2 presents information on the relative importance of these reasons for different demographic groups. The relative rankings of reasons for desiring a change in jobs which were found to hold overall are also seen to hold for different race and sex groups as well. However, some differences are apparent in the percentages of the unemployed of different groups who want to change jobs and in the degree to which this desire is for a particular reason.

In general, larger percentages of unemployed nonwhites than unemployed whites desire a change in jobs. Approximately 78 percent of nonwhite males want a job change, compared with 70 percent of white males. For females, the difference is less: 76 percent of nonwhite females want a job change, compared with 73 percent of white females.

Differences in the percentage of the unemployed wishing to change jobs appear to vary when comparisons are drawn between males and females of different races. A higher percentage of white females than white males desire a job change. When a similar comparison is

TABLE 7-2
INDICATORS OF VOLUNTARY UNEMPLOYMENT IN LOUISIANA
BY RACE AND SEX
NOVEMBER, 1973

REASONS FOR UNEMPLOYMENT	PERCENTAGE OF UNEMPLOYED GROUP[a]			
	MALE		FEMALE	
	WHITE	NONWHITE	WHITE	NONWHITE
SALARY INCREASE DESIRED	15.0	23.0	16.0	22.0
PERSONAL QUALIFICATIONS CHANGED	5.0	4.0	4.0	4.0
NEW JOB AVAILABLE	14.0	12.0	11.0	15.0
OTHER[b]	36.0	39.0	42.0	35.0
TOTALS	70.0	78.0	73.0	76.0

Source: Calculated from data provided by the Louisiana Office of State Planning.

[a]Percentages are rounded.

[b]"Other" includes dismissals where old job exists, and does not include dismissals where old job does not exist. Percentages will therefore not equal 100 percent when summed.

drawn between nonwhite males and nonwhite females the situation is reversed. A slightly higher percentage of nonwhite males desired a change in jobs compared with nonwhite females.

Relative rankings of the different reasons for wishing to change jobs were the same for all groups. The "other" category ranked first, a desire for a salary increase ranked second, the availability of a new job ranked third, and a change in personal qualifications ranked last for every demographic group considered.

While relative rankings of the reasons did not vary among the groups, the percentages of different groups giving a particular reason did vary somewhat. In particular, higher percentages of nonwhites of both sexes desired an increase in salary and gave this as the reason for wanting to change jobs. The availability of new jobs was slightly more important for nonwhite females compared with nonwhite males, but decidedly more important for white males compared with white females.

When comparisons of voluntary indicators is made with the duration of unemployment for specific groups, some definite inconsistencies emerge. Approximately 78 percent of nonwhite males wanted to change jobs, compared with 70 percent of white males. Yet the percentage of nonwhite males who had been jobless for less than a month was only 67 percent compared with the 78 percent of white males experiencing primarily short-term unemployment. Approximately 76 percent of nonwhite females desired a job change, compared with 73 percent of white females. Yet, while 72 percent of white females

had been unemployed for less than a month, only 40 percent of nonwhite females had experienced short-term joblessness prior to the interview. Thus, higher percentages of nonwhites of either sex wanted to change jobs when compared to their white counterparts, yet lower percentages of nonwhites appear to be successful in realizing this goal.

The Direct Evidence

The indirect evidence on the relative importance of frictional unemployment for different groups provides useful information because it establishes some necessary preconditions for a differential incidence of frictional unemployment. Yet, as the sufficient conditions are not provided, a more direct body of evidence is also useful. This body of direct evidence may be provided in comparing the relative distributions of unemployed groups among occupations in which different degrees of frictional unemployment, directly measured, has been found.

The job vacancy and unemployment data allow for an investigation of the likely impact of frictional factors among particular demographic groups comprising the unemployed. It is possible to compare the distributions of unemployed groups among the broad occupational classifications with the relative incidence of frictional unemployment in those classifications. If frictional factors represent a more serious barrier to employment relative to nonfrictional factors for a particular group then the unemployed of that group would be concentrated in occupations in which frictional factors explain higher percentages of total unemployment. On the other hand, if a change in occupations as

a requisite to employment was more serious, then the unemployed of a particular group would be concentrated in occupations in which job vacancies limited the degree of frictional unemployment.

The comparisons may be facilitated through the use of the Spearman Correlation analysis. A large and positive coefficient would indicate that the unemployed of a particular group is concentrated in occupations exhibiting high degrees of frictional unemployment, while a large and negative coefficient indicates that the unemployed of a particular group are concentrated in occupations in which job opportunities were limited.

TABLE 7-3
DEMOGRAPHIC CORRELATES OF
FRICTIONAL UNEMPLOYMENT IN LOUISIANA
NOVEMBER, 1973

RACE	SEX	
	MALE	FEMALE
WHITE	-.18	+.65[b]
NONWHITE	-.76[a]	+.20

Source: See text.

[a]Significantly different from zero at the 95% confidence level.

[b]Significantly different from zero at the 90% confidence level.

Table 7-3 presents the correlations between the percentages of the major occupational classification and the percentages of particular unemployed groups found in those classifications. The table

reveals considerable differences in the likely impact of frictional barriers among different groups delineated by race and sex.

In general, the importance of frictional barriers to employment relative to nonfrictional barriers to employment appears to be higher for nonwhites compared with their white counterparts. For females, the white correlation coefficient was +.65 and statistically significant, while the nonwhite coefficient was found to be insignificantly different from zero. For males, the white coefficient was found to be insignificantly different from zero while the nonwhite coefficient was found to be -.76 and statistically significant. Thus, higher percentages of unemployed whites are concentrated in occupations exhibiting above-average levels of frictional unemployment, compared with unemployed nonwhites.

This finding is consistent with the evidence on duration. Compared with unemployed whites experience short-term unemployment to a lesser extent, and long-term unemployment to a greater extent, than do their white counterparts. The direct evidence would suggest that a primary reason for this is that nonwhites are confronted by education, skill, and cyclical barriers to employment to a greater extent than whites.

The finding also explains the apparent inconsistency arising from examination of the "voluntary indicators". Nonwhites appear not to be successful in realizing job change goals in part because of potential educational and skill deficiencies.

The direct evidence would indicate that frictional barriers to employment are more important for females compared with males. For whites, the female coefficient was +.65 and significant compared to the -.18 and statistically insignificant coefficent for males. For nonwhites, the female coefficient was +.20 but insignificant, compared with the significant -.76 and significantly negative coefficient found for nonwhite males. Thus, higher percentages of unemployed females are concentrated in occupations exhibiting above-average levels of frictional unemployment compared with their male counterparts.

This finding is not consistent with the indirect evidence. It was found that fewer percentages of females had experienced short term unemployment prior to the survey, compared with males. This finding, in itself, would indicate that frictional barriers are more important for males than for females. Yet, greater percentages of females are in occupations exhibiting above-average levels of frictional unemployment, compared to their male counterparts. This, in itself would suggest that frictional barriers are more important for females compared with males. Thus while females are not faced with problems of skill and cyclical variations in employment to the same extent as are their male counterparts, the average duration of unemployment is higher for females compared with males. This finding underscores the critical need for information services among females.[4]

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[4]It may also indicate the presence of other structural barriers that are relatively more important for females. See Chapter Two, supra.

In sum, the evidence suggests a differential impact of frictional barriers to employment among different demographic groups comprising the unemployed in Louisiana. Frictional barriers are more important for unemployed whites compared with unemployed nonwhites. A relative absence of structural and cyclical barriers is indicated for females compared with males, but the average duration of unemployment among females is nevertheless comparatively higher.

The Demographic Incidence of Structural Unemployment in Louisiana

What is the relative importance of structural unemployment to different demographic groups? An examination of the incidence of long term unemployment, and an examination of the demographic correlates of historical and expected trends in the occupational composition of total employment, can provide the indirect evidence. An examination of the distribution of unemployed groups among different occupations according to GED and SVP ratings can provide the direct evidence.[5]

The Indirect Evidence

Indirect evidence on the relative importance of structural unemployment for different race and sex groups may be provided in an examination of long-term unemployment, and in an examination of the extent to which the employment of a particular group is correlated

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[5]On GED and SVP ratings, see Chapter Two, supra.

with historical and expected trends in the occupational composition of employment. Though incapable of providing sufficient evidence, these indirect approaches are useful in providing necessary preconditions for a differential incidence of structural unemployment among particular groups.

If structural unemployment is comparatively higher among a particular group relative to other groups, it would be expected that the incidence of long term unemployment would similarly be comparatively higher. Larger percentages of those groups confronted by structural barriers to a comparatively higher extent would be expected to remain unemployed for comparatively longer periods of time.

By noting the complements of the percentage distributions given in Table 7-1, the incidence of long-term unemployment among particular groups may be inferred. According to that table, long term unemployment is of greater significance among nonwhites, compared to their white counterparts, and generally of more importance among females compared with their male counterparts, though minimal difference was found in the case of white males and females. These empirical findings suggest that structural barriers to employment are of greater significance to nonwhites and women. This conclusion is consistent with other empirical studies of structural unemployment which have been conducted on the basis of duration.[6]

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[6]Barbara Bergman, "Alternative Measures of Structural Unemployment," in Arthur M. Ross, ed., Employment Policy and the Labor Market, (Berkeley: University of California Press, 1965).

Beyond this expected finding, evidence on "very-long term" unemployment - or, unemployment lasting for more than a year prior to the collection of the data - can be isolated. Table 7-4 provides the available evidence.

In general, the percentages of the different demographic groups falling into the "long-term" category are consistent with expectations. White males suffer least from long term unemployment, followed by white females, nonwhite males, and nonwhite females. The very high percentage of the latter, 13 percent, indicates a likelihood of severe structural barriers to employment for nonwhite females.

TABLE 7-4
VERY LONG-TERM UNEMPLOYMENT IN LOUISIANA
BY RACE AND SEX

Race	SEX	
	Male	Female
White	1.0	3.0
Nonwhite	3.0	13.0

Source: Calculated from data provided by Louisiana Office of State Planning. Entries refer to percentages (rounded) of unemployed groups who had been unemployed for over a year prior to the survey.

The evidence on long term unemployment, and on very long term unemployment would suggest that structural barriers to employment are of greater general significance for nonwhites compared with whites, and of particular significance for nonwhite females. This is what

would be expected given the earlier analysis of short-term unemployment. As before, a qualification must be noted: there is no evidence on the duration of unemployment subsequent to the interview. Based on the comparisons of very long term unemployment, however, a reasonable expectation would be that nonwhites, and nonwhite females in particular, would remain jobless for comparatively longer periods of time subsequent to the point in time at which the data was collected.[7]

Further indirect evidence on the relative importance of structural barriers to employment may be provided in a determination of the extent to which changes in the percentage distributions of particular groups across occupations are correlated with historical and expected changes in the distribution of total employment across occupations. Higher correlations between percentage changes in the employment of a particular group in an occupation, and the percentage change in total employment in that occupation, would imply that a particular group is "keeping up" in terms of acquiring and successfully marketing

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[7] Some insights may be afforded by the empirical findings of Stuart Garfinkle in this regard. Garfinkle studied the duration of completed spells of unemployment for the different groups with the assistance of follow-up interviewing. He reports that "the length of time needed for the unemployed to find a job was longer for both Negro men and women" and "for those who left the work force, Negro men stopped looking somewhat earlier than white men, but Negro women continued their search longer than did white women." This is consistent with the structural hypothesis, and may explain the differentials found in this study, particularly for nonwhite women. See Stuart Garfinkle, The Duration of a Spell of Unemployment, (New Orleans: Paper presented at the November, 1975 meetings of the Southern Economics Association), pp. 13.

the "correct" occupational skills. On the other hand, a weaker correlation between percentage changes in group employment in a particular occupation, and percentage changes in total unemployment would indicate that a group was not "keeping up" - and would indicate a stronger potential for structural barriers to employment.

Table 7-5 presents the Spearman Rank correlation coefficients between ranks of percentage point changes in the employment of different race and sex groups, and ranks of historical and projected percentage changes in employment across the major BLS occupational categories. The table indicates a potential for a differential incidence of structural barriers to employment among the different groups.

The coefficients imply a higher incidence of structural barriers among nonwhites than among whites. For males, the white correlation coefficient was +.88 with historical changes in total employment, and +.83 with projected changes. This compared with figures of only +.74 and +.79, for nonwhite males. For females, the white correlation coefficient was +.80 with historical changes in total employment, and +.85 with figures of +.79 and +.83 for nonwhite females. In general, the percentage point changes in the occupational distribution of the employment of whites is more in line with changes in total employment compared with nonwhites. This indicates that structural barriers to employment may be of greater significance to nonwhites.

TABLE 7-5
DEMOGRAPHIC CORRELATES OF
HISTORICAL AND FORECASTED TRENDS IN
THE OCCUPATIONAL COMPOSITION OF LOUISIANA EMPLOYMENT

DEMOGRAPHIC GROUP[a]	CORRELATIONS[b]	
	HISTORICAL TRENDS	FORECASTED TRENDS
White Males	+.88	+.83
Nonwhite Males	+.74	+.79
White Females	+.80	+.85
Nonwhite Females	+.79	+.83

Source: See text.

[a]Rankings of percentage-point changes in the percentage distribution of the employed of particular group among major census occupational categories from 1960 to 1970 were used in the correlationa with (b).

[b]Rankings of percentage changes in employment among major census occupational categories from 1960 to 1970, and expected 1970-1980 were used in the correlations with (a). All correlation coefficients are significant at the 95 percent confidence level; n = 8.

The coefficients may imply a higher incidence of structural barriers to employment among males than females. For whites, the male correlation coefficient with historical changes in the occupational composition of employment was eight points higher than for white females, but in terms of correlation with projected increases, the female coefficient was two points higher. For nonwhites, the female correlation coefficient with historical trends was five points higher than the male coefficient, and the female correlation coefficient with expected trends was six points higher. In general, the percentage point changes in the occupational distribution of the employment of females is more in line with changes in total employment compared with males.[8] This indicates that structural barriers to employment may be of greater significance to males.

These findings are in general agreement with the other evidence. The finding that nonwhites may not be attaining the occupational skills exhibiting the fastest growth to the same extent as their white counterparts may indicate that structural factors are more important for nonwhites. This is consistent with the analyses of short and long-term unemployment, and is consistent with the evidence on the demographic incidence of frictional barriers to employment. The finding that males are "keeping up" to a lesser extent than females would imply the possibility of structural barriers to employment assuming a comparatively greater importance for males. This is consistent with

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[8] A behavioral explanation may lie in reduced labor force participation among males compared with females. See footnote 7, supra.

with the evidence on the demographic incidence of frictional unemployment. Yet, though females face primarily frictional barriers to a greater extent than do males, it should be kept in mind that the average duration of unemployment among females is higher.

The Direct Evidence

Direct evidence on the relative demographic incidence of structural unemployment may be provided in a comparative examination of the extent to which the unemployed of particular groups would have had to change occupations in order to secure employment, and the extent to which this change in occupations would have involved increased educational attainment and specific job training. The implications that the available evidence holds for these questions may be inferred from the direct evidence on the demographic incidence of frictional unemployment.

The available direct evidence implies that structural barriers to employment are likely to be of greater significance for nonwhites compared with whites. Since lower percentages of nonwhite males and females were found in occupations in which jobs were available compared with their white counterparts, larger percentages of nonwhites would have found a change in occupations necessary to employment. It has been shown that this change in occupation would probably have involved increased educational attainment and training.[9] Nonwhites

[9]Chapter Five, supra.

would therefore have faced education and training as barriers to employment. Given that higher percentages of nonwhites would have found a change in occupations necessary to employment compared to whites, it may thus be concluded that nonwhites are confronted by education and training barriers to a greater comparative extent than whites.

The available direct evidence implies that structural barriers to employment may be of greater significance for men than for women. Since lower percentages of nonwhite and white males were found to be in occupations in which jobs were available relative to their female counterparts, comparatively larger percentages of males would have found an occupational change necessary. This occupational change would have likely involved increased educational attainment and training.[10] Males would therefore have been confronted by education and training as barriers to employment to a comparatively larger degree than females.

This conclusion must be qualified, however. While education and training are likely to represent barriers of lesser significance for females compared with males, the indirect evidence suggests that females remain unemployed for comparatively longer periods of time than do males. This may indicate the presence of other structural

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[10] Ibid.

barriers that are more important for females, or it may indicate a simple preference among females to "take their time" in searching for work.[11]

The Demographic Incidence of Cyclical Unemployment in Louisiana

What is the relative significance of cyclical unemployment to different demographic groups? A comparison of the unemployment rates of the different groups in periods when total unemployment differs may provide some indirect evidence on this question. Inferences allowed by direct examination of job vacancies and total unemployment may provide the direct evidence.

The Indirect Evidence

In order to provide indirect evidence on the relative incidence of cyclical unemployment among different race and sex groups, the unemployment rates of these groups at different points in the business cycle may be compared. The second is to examine evidence on the differential demographic incidence of job loss. Although this examination fails to provide the sufficient evidence for a differential impact of cyclical unemployment as a barrier to employment, it is useful in augmenting the direct evidence because they establish some necessary preconditions.

Table 7-6 provides a comparison of overall unemployment rates with the unemployment rates of specific demographic groups in the

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[11] Chapter Two, *supra*, and footnote 7, *supra*.

TABLE 7-6
COMPARISON OF OVERALL AND
DEMOGRAPHIC UNEMPLOYMENT RATES
1950, 1960, AND 1970

	Unemployment Rates		
	1950	1960	1970
Overall	4.6	6.1	5.4
White Males	4.0	4.9	3.7
Nonwhite Males	6.8	10.3	7.5
White Females	2.7	4.1	4.0
Nonwhite Females	5.7	8.3	8.4

Source: U.S. Bureau of the Census, U.S. Census of Population, Part 20: Louisiana, (Washington, D.C.: U.S. Government Printing Office; 1950, 1960, and 1970).

years 1950, 1960, and 1970. The evidence indicates some disparities in the likely demographic incidence of cyclical unemployment.

The impact of cyclical unemployment appears to be more pronounced among nonwhites than among whites. For white males, the unemployment rate rose only .9 percentage points between 1950 and 1960 as the total rate of unemployment rose from 4.6 percent to 6.1 percent, and fell by only .7 percentage points between 1960 and 1970 as the total rate of unemployment fell to 5.4 percent. These figures compare with an increase of 3.5 percentage points in the nonwhite male unemployment rate between 1950 and 1960, and a fall in the nonwhite male unemployment rate of 2.8 percentage points between 1960 and 1970. The white female unemployment rate rose by 1.4 percentage points between 1950 and 1960, and fell by .1 percentage point between 1960 and 1970. These figures compare with an increase in the nonwhite female rate of unemployment of 2.6 percentage points between 1950 and 1960, and an actual increase in the unemployment rate of nonwhite females between 1960 and 1970. Hence the nonwhite rates of unemployment increase by higher increments when total unemployment increases. This suggests that when cyclical unemployment increases overall, nonwhites are affected more than whites.[12]

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[12]This conclusion is consistent with that found in Edward Gramlich, "The Distributional Effects of Higher Unemployment," Brookings Papers on Economic Activity, (2:1974), pp. 293-341. In a more sophisticated analysis, Gramlich reaches the same conclusions when changes in transfers, age, trends, number of dependents, education, criminal records, and occupation are taken into account.

These findings are consistent with the indirect and direct evidence presented earlier. As nonwhites are confronted by frictional barriers to employment to a lesser extent, it would be expected that cyclical, as well as structural barriers are of greater significance for nonwhites.

The differential impact of cyclical unemployment among males and females does not show the pronounced differences found in the differential impact among whites and nonwhites. For whites, the female unemployment rate rose to a higher degree between 1950 and 1960 compared to the male unemployment rate, but fell by a lower margin between 1960 and 1970. For nonwhites, the female unemployment rate rose by a smaller margin between 1950 and 1960, than the change in the male unemployment rate, but the female unemployment rate rose between 1960 and 1970 while the male unemployment rate fell. Perhaps differences in the incidence of frictional and structural factors among males and females account for these disparities.[13]

The Direct Evidence

Direct evidence on the relative demographic impact of structural unemployment among the different groups may be provided in an examination of the extent to which the unemployed of a particular group would have found it impossible to obtain employment in any occupation

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[13]Or, it may be that adjustments in labor force participation are responsible, particularly in the case of the nonwhite differences. See the summary of Stuart Garfinkle's findings in footnote 7, supra.

in the state. The implications that the available evidence holds for this question may be inferred from the direct evidence on frictional unemployment.

Higher percentages of nonwhites were "surplus-workers" - that is, greater percentages of nonwhites could not have found employment in their own line of work in the state. While some of these individuals could have changed occupations, not all could have due to the absolute limit imposed by the total number of job openings.[14] This means that, since nonwhites are more likely to be a surplus worker, and since a given surplus worker is likely to face an absolute lack of job openings in addition to structural barriers, nonwhites are likely to face cyclical barriers to employment to a larger degree than whites. This inference is supported by the indirect evidence.

By similar reasoning, it might be expected that males face cyclical barriers to a greater extent than do their female counterparts. Since higher percentages of unemployed males are likely to be surplus workers compared to their female counterparts, and since surplus workers face cyclical barriers in addition to structural barriers, it can be inferred that males probably face cyclical barriers to employment to a comparatively higher degree. Since females experience a longer average duration of unemployment, and since the indirect evidence on cyclical unemployment is mixed, any general conclusion on the question must be necessarily tentative, however.

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[14]Chapter Six, supra.

Some Implications

A goal of public policy has been to reduce inequities in the distribution of unemployment. Under such provisions as Title IV of the Comprehensive Employment and Training Act, for example, funds are available for this purpose. These funds provide for information services, job training, and public-service employment as means toward the goal of reducing above-average rates of unemployment among "disadvantaged groups".

The evidence suggests that if the higher unemployment rates of nonwhites are to be reduced, some combination of job training and public service employment for nonwhites would be required. At the time that the available data allows for direct comparisons, with statewide unemployment rate of 5.8 percent, the emphasis should be on job training in this regard. At higher overall levels of overall unemployment, public service employment would assume a greater significance.[15]

General conclusions are not easily derived in the case of different strategies for different sex groups. Unemployment rates for white females are typically lower than for white males. This, together with the relatively higher incidence of frictional unemployment among

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[15]With total unemployment rates in excess of six percent, manpower revenue sharing funds are increased automatically, with a recommendation for public service employment. Yet, it is up to the discretion of the administering agency how the funds are to be used. In turn, this often depends on the Governor's predilections. See Robert Guttman, "Intergovernmental Relations Under the New Manpower Act," Monthly Labor Review, (June, 1974), pp. 10-16), and Chapter Five, supra.

white females, suggests that information services are comparatively more important for this group, and that training and public service employment are of comparatively greater need for their male counterparts. A similar dichotomy cannot be drawn for nonwhites: education, job training, and public service employment are important for both nonwhite males and nonwhite females.

These inferences must be qualified in at least two ways. One qualification concerns the static nature of the comparisons. Another concerns the possible effects of racial discrimination.

The findings hold only for an overall unemployment rate of 5.8 percent. With higher unemployment rates, cyclical unemployment can be expected to increase relative to the other types.[16] This means that the extremely high structural barriers found for nonwhites would diminish in relative importance. The public policy implication of this would be higher budget emphasis on public service employment, particularly for nonwhites.

Evidence on employment disparities by race in Louisiana that are not fully explained by income and educational differences have been provided by John H. Carson.[17] Carson finds that the absence of a State Fair Employment Law is a potential impediment to the occupational progress of nonwhites in Louisiana.[18]

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[16]Chapter Six, supra.

[17]John H. Carson, The Economics of Racial Discrimination in Louisiana, (Baton Rouge, Occasional Paper No. 20, Division of Research, College of Business Administration, Louisiana State University, 1974).

[18]Ibid.

The conclusion of a greater likely need for job training and education among nonwhites, if they were to secure employment as of the date at which comparisons are possible, must be qualified by Carson's conclusion. If job training is to succeed in reducing racial inequities in the incidence of unemployment, it may be that Fair Employment Legislation would have to be a necessary, complementary political action. The possibility of training without displacing the current employed, nor necessarily depressing wage rates, reduces at least some of the traditional arguments against this action.[19]

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[19]Chapter Five, supra.

CHAPTER EIGHT

SUMMARY AND CONCLUSIONS

There are two major objectives sought in this study. The first objective is to determine the relative strengths of some potential barriers to employment confronting the unemployed in Louisiana, given the available data. The second objective is to derive the logical implications for public policy issues that follow from the empirical investigations.

The basic method followed in order to achieve these objectives is an empirical separation of frictional, structural, and cyclical factors in overall Louisiana unemployment, and an assessment of the likely impact of these factors among particular groups as delineated by race and sex. Table 8-1 provides a recapitulation of the major empirical findings of the study.

As used in this study, frictional unemployment represents qualified, unemployed persons who are expected to be temporarily between jobs in the state at current wage levels. As losses in output and personal income are expected to be minimal, frictional unemployment is the most "agreeable" of the alternative types of unemployment.

Frictional unemployment was found to rank second in relative importance among alternative types of unemployment in a direct comparison of job vacancies and the unemployed by detailed occupational

TABLE 8-1
RECAPITULATION:
FRICTIONAL, STRUCTURAL, AND CYCLICAL FACTORS
IN LOUISIANA UNEMPLOYMENT
NOVEMBER, 1973

FACTOR	NUMBER	PERCENT OF LABOR FORCE
FRICTIONAL UNEMPLOYMENT	31,237	2.2
STRUCTURAL UNEMPLOYMENT	36,816	2.7
CYCLICAL UNEMPLOYMENT	12,447	0.9
TOTALS	80,500	5.8

Source: Summary data from Chapters Four through Six.

skill as of November, 1973. The direct evidence indicates that 31,237 unemployed Louisianans could have found employment suited to their skills somewhere in the state. These frictionally unemployed individuals represented 2.2 percent of the labor force, and hence accounted for 2.2 percentage points in the 5.8 percent rate of unemployment in November of 1973.

Since a number of studies have shown that job vacancies decline when total unemployment increases,[1] it would be expected that frictional unemployment may assume a different relative significance relative to cyclical unemployment given a different rate of unemployment. In particular, frictional unemployment might be expected to fall in significance relative to cyclical unemployment as the unemployment rate rises above 5.8 percent. Similarly, frictional unemployment would be expected to rise in relative significance compared with cyclical unemployment as total unemployment falls below 5.8 percent.

While this qualification is necessary, it is not devastating. The overall unemployment rate of 5.8 percent that existed in a determination of frictional unemployment is typical of rates of unemployment experienced in Louisiana in recent years. It is neither unusually high, as in the current recession, nor abnormally low.[2]

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[1] Chapter Six, supra.

[2] Ibid.

Structural unemployment represents unemployed individuals who would have found no job openings in their own occupation, but who could have been confronted by job openings in other occupations. Structural unemployment is a less agreeable kind of unemployment, because it may be expected to be longer lasting compared with frictional unemployment. In turn, greater losses in foregone output and personal income result from this longer-lasting unemployment.

Structural unemployment was found to rank first in relative importance among alternative types of unemployment in a direct comparison of job vacancies and the unemployed by detailed occupational skill as of November, 1973. The direct evidence indicates that 36,816 unemployed individuals could not have found employment within their own occupation at given wage rates, but could have found job openings somewhere in the state in other occupations. These individuals represented 2.7 percent of the state's labor force, and hence accounted for 2.7 percentage points in the overall rate of unemployment.

While there are many conceivable reasons why structural unemployment can be expected to be of relatively long duration, the potential barriers of education and specific job training are singled out for empirical examination in this study. It was found that higher levels of excess demands for labor were in occupations estimated to require relatively higher levels of educational attainment and specific vocational preparation. It was also found that higher levels of excess labor supplies of labor were found in occupations estimated to

require relatively lower levels of educational attainment and specific vocational preparation. These findings indicate that educational and skill deficiencies must be considered barriers to employment confronting the structurally unemployed.

It is to be expected that structural unemployment would differ in its significance relative to other types of unemployment, given an overall unemployment rate other than 5.8 percent. At levels of unemployment higher than 5.8 percent, structural unemployment would be expected to decline relative to cyclical unemployment because total job openings diminish. At rates of unemployment below 5.8 percent, structural unemployment would be expected to increase in relative importance as job openings increase.[3]

The comparisons found in this study are nevertheless useful for two reasons. First, the 5.8 percent is a typical rate of total unemployment over recent years. Second, the excess demands for labor found in the present comparisons were found to be highly correlated with long term trends in the occupational composition of employment in Louisiana. Cyclical deviations notwithstanding, the structural unemployment found in November of 1973 therefore represent empirical results that are characteristic of these trends.

Cyclical unemployment represents unemployed individuals who would have found it impossible to obtain employment in any occupation

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[3] Ibid.

due to an absolute shortage of total job openings. Cyclical unemployment ranked least in relative importance among the three types of unemployment considered. The direct evidence indicates that 12,447 unemployed individuals would have found it impossible to obtain employment in any occupation anywhere in the state due to an absolute shortage of job openings. These individuals represented 0.9 percent of the labor force, and thus accounted for 0.9 percentage point in the 5.8 percent rate of unemployment in November of 1973.

Since total job openings are known to decline with increases in total unemployment, cyclical unemployment could be expected to assume a different relative significance when total unemployment rates other than 5.8 percent exist. In particular, cyclical unemployment would be expected to increase in relative importance as total unemployment rises, and decrease in relative significance as total unemployment falls.[4]

Frictional, structural, and cyclical factors were found to vary in their incidence among particular demographic groups comprising the Louisiana unemployed. Frictional factors were generally more important for whites, and particularly for white females. Structural and cyclical factors were found to be more important for nonwhites, particularly for nonwhite males.

In general, public policy measures on unemployment at the state level include information services, job training, and public service

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[4] Ibid.

employment. These measures are intended to reduce overall unemployment, and to reduce inequities in the distribution of unemployment.

The provision of information services should assume a strong emphasis when overall unemployment is approximately six percent in Louisiana. Information services would be of importance to women in general, but of particular importance to white females.

Given an overall unemployment rate of 5.8 percent, there is a strong potential for reducing unemployment through job training. A number of traditional criticisms of job training were found to be invalid in this study.

First, the criticism that job training would fail to reduce unemployment because of a shortage of job openings was found to be invalid. This criticism suggests that newly trained individuals would simply displace individuals who are already employed, leaving the total rate of unemployment unchanged.[5] This assertion was found to be largely invalid: there were 36,816 job openings that could have been filled without this "displacement effect".

Second, the criticism that job training would depress the wage rates of those individuals already employed was found to be unlikely. Since the comparisons were made in a cross-sectional analysis, wage rates are a "given". Moreover, since no displacement need occur, no depressing of wage rates is suggested.

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[5]Chapter One, supra.

Finally, the alternatives suggested by job training appear either to be unnecessary or incapable of reducing total unemployment when used above. Simply providing information would not have been enough for many structurally unemployed workers: most of these 36,816 persons would have found an upgrading of skills necessary to employment in the jobs "informed" of. Public service employment, while perhaps most expeditious, was not necessary as a sole measure.

Job training appeared to be of greatest potential in reducing the unemployment of nonwhites, and therefore in reducing inequities in the distribution of total unemployment. It may be, however, that job training without complementary Fair Employment legislation in the state would be a futile exercise.

The potential for job training varies with the extent of structural unemployment. When unemployment exceeds 5.8 percent, job training might be expected to decline relative to public service employment as a potential means to diminish unemployment. On the other hand, since the structural unemployment found in 1973 was highly correlated with long-term trends in the occupational composition of employment in Louisiana, an ongoing potential for reducing total unemployment through job training is indicated.

The need for pubic service employment was found to be comparatively small in November of 1973. The maximum reduction in unemployment that would, out of necessity, have required public service employment was 0.9 of a percentage point in the overall rate of

unemployment. When overall unemployment rises, however, the need for public service employment could be expected to increase in relative and absolute terms.

Public service employment was found to represent the largest likely potential for nonwhites. Indeed, without state Fair Employment legislation, it may be the most necessary means of reducing inequities in the distribution of total unemployment in Louisiana.

Suggestions for Future Research

A number of limitations of this study must be set forth. These limitations suggest some avenues for additional research on Louisiana unemployment.

This study should be replicated in the future, and the findings compared over time. Preferably, the study should be replicated at a time when total unemployment is substantially different from 5.8 percent. This would enable a check on expected relative movements of frictional, structural, and cyclical factors in overall unemployment, and further allow a quantitative assessment of these movements. The relevant data will be available in the future.[6]

The effect that "hidden unemployment" might be expected to have on this study might be studied. The analyses of this study have been undertaken for only those individuals who are seeking work. While this analysis is consistent with the current definition of

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[6]Personal communications with Dr. Fred Wrighton of the LOTIS consortium, and Dr. Geneva Carroll of the Louisiana Office of State Planning.

unemployment used by the Bureau of Labor statistics, it excludes individuals who may have dropped out of the labor force out of discouragement. Since it might be expected that the barriers to employment confronting these individuals are similar to those faced by their demographic cohorts, the basic conclusions of this study would not be appreciably affected by the hidden unemployed in this regard. Yet, the hidden unemployed represent a potential contribution to economic growth in the state, and should be studied.[7]

Finally, the possible effects that migration of labor to and from the state in conclusions of this study should be studied. The labor shortages found in the highly skilled occupations could conceivably have been reduced through migration into the state. Similarly, surplus labor migrating from the state may have occurred to an extent sufficient to relieve the excess labor supplies. Any study along these lines will, however, meet with severe data limitations.[8]

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[7]For some initial attempts, see the author's "Louisiana's Untapped Potential Labor Force," Economic Trends, (Baton Rouge: Public Affairs Research Council; August, 1975). The potential for hidden unemployment was found for males and unmarried women.

[8]The net migration rate for the state was -4.1 percent. This aggregate figure hides a net in-migration of whites, and a -15.1 net out-migration of nonwhites. How many of the out-migrants were "surplus workers," and how many of the incoming migrants possessed skills relevant to the excess demands found in this study is largely indeterminate without extensive future research.

While these data limitations are bothersome, they were judged not to represent factors which completely vitiate the empirical research undertaken in the present study. As has been noted elsewhere, "unemployment is too important a problem to be ignored by empirical economists on the grounds of unsatisfactory data."[9] This is no less true of unemployment in Louisiana than it is of unemployment in general.

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[9]Robert E. Hall, "Why is the Unemployment Rate so High at Full Employment?", Brookings Papers on Economic Activity, pp. 371.

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APPENDIX

COMPARISON OF VACANCIES AND UNEMPLOYMENT

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
PROFESSIONAL, TECHNICAL, MANAGERIAL					
	ARCHITECTURE AND ENGINEERING				
001008	Architect	25	9	16	0
019081	" , Landscape	2	0	2	0
001081	" , Naval (Marine)	10	0	10	0
005081	Construction Engineer (Builder)	0	53	0	53
010281	Core Analyst	0	0	0	0
001281	Draftsman, Architectural	77	44	33	0
005281	" , Civil	89	115	0	26
003281	" , Electrical/Electronic	62	18	44	0
010281	" , Geological	20	9	11	0
017281	" , Map	18	35	0	17
007281	" , Mechanical	135	35	100	0
014281	" , Marine	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
002081	Engineer, Aeronautical/Aerospace	0	18	0	18
008081	" , Chemical	125	9	116	0
005081	" , Civil	146	53	93	0
003081	" , Electrical/Electronic	124	79	45	0
012188	" , Industrial	341	18	321	0
014081	" , Marine	17	9	8	0
007081	" , Mechanical	193	26	167	0
010062	" , Mining	3	18	0	15
010081	" , Petroleum	93	9	84	0
007187	Machine Tool Programmer/Plant Engineer	2	0	2	0
011081	Metallurgist	0	0	0	0
007081	Optical Technician	15	18	0	3
014187	Port Engineer	1	0	1	0
012168	Quality Control Director	42	18	24	0
019281	" " Technician	46	0	46	0
005081	Railroad Engineers	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
018188	Surveyor	68	70	0	2
012168	Systems Analyst	67	18	49	0
005081	Technician, Civil Engineering	27	0	27	0
003181	" , Electrical/Electronic	185	97	88	0
012288	" , Industrial Engineering	357	18	339	0
003281	" , Instrumentation	418	0	418	0
007181	" , Mechanical Engineering	148	27	121	0
007181	Tool Designer (Die Setter)	27	0	27	0
	MATHEMATICS AND PHYSICAL SCIENCES				
022081	Chemistry	99	35	64	0
024081	Geology/Geophysics	87	44	43	0
029281	Laboratory Technician (Tester)	93	70	23	0
020088	Mathematics	0	35	0	35
025088	Meteorology	0	18	0	18
024081	Oceanography	0	0	0	0
023081	Physics	0	9	0	9
020188	Programmer, Business	76	106	0	30

D. O. T. CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
020188	Programmer, Engineering/Scientific	4	0	4	0
020168	Project Director	14	9	5	0
022188	Statistician, Applied	10	0	10	0
	LIFE SCIENCES				
041081	Biologist	0	44	0	44
040081	Agronomist	15	10	5	0
041081	Microbiologist	3	0	3	0
045108	Psychologist	10	105	0	95
041081	Zoologist	0	0	0	0
	SOCIAL SCIENCES				
050258	Consumer Representative	4	0	4	0
054088	Criminology	0	9	0	9
050088	Economics	9	27	0	18
052088	History	0	18	0	18
051088	Political Science	0	9	0	9
059088	Social Sciences, n.e.c.	0	9	0	9

D. O. T. CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	MEDICINE AND HEALTH				
070108	Anesthetist	7	9	0	2
079108	Audiologist	0	0	0	0
079108	Chiropractor	0	0	0	0
079168	Community Health Worker	94	0	94	0
078281	Cytotechnologist	2	0	2	0
079378	Dental Assistant	0	185	0	185
078368	" Hygienist	0	35	0	35
072108	Dentist	135	0	135	0
077168	Dietition/Nutritionist	24	9	15	0
078368	E. E. G. Technician	0	0	0	0
078368	E. K. G. "	6	0	6	0
079168	Environmental Health Technician	3	0	3	0
079118	Health Educator	19	0	19	0
079368	Inhalation Therapist	0	0	0	0
079368	Medical Assistant, n.e.c.	6	0	6	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
078381	Medical Technologist	47	44	3	0
078687	" " , Laboratory	33	9	24	0
079128	Music Therapist	0	0	0	0
078381	Nuclear Medical Technology	0	0	0	0
075128	Nurse Educator	11	0	1	0
079378	" , L. P. N.[b]	477	202	275	0
075378	" , R. N.[b]	1,033	123	923	0
079128	Occupational Therapist	47	0	47	0
079368	" " Aide	12	0	12	0
079108	Optometrist	3	0	3	0
074181	Pharmacist	86	18	68	0
074387	Pharmacy Assistant	1	18	0	17
079378	Physical Therapist	3	0	3	0
071108	Physicians and Surgeons	105	0	105	0
079108	Podiatrist	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
078368	Radiologist Technician	5	0	5	0
079128	Recreational Therapist	1	0	1	0
070400	Rehabilitation Counselor	2	0	2	0
079118	Sanitarian	22	0	22	0
079108	Speech Pathologist	2	0	2	0
073108	Veterinarian	0	0	0	0
079358	Medicine and Health, n.e.c.	0	0	0	0
079588	"	0	27	0	27
	EDUCATION				
090228	College and University Faculty	244	5[a]	239	0
091118	School Administrators	43	0	43	0
092887	Teacher, Kindergarten	0	9	0	9
092228	" , Elementary	148	370	0	222
091228	" , Secondary[b]	130	335	0	205
094228	" , Special Education	170	9	161	0
090228	" , Vocational-Technical	115	5[a]	110	0
099368	" , Education, n.e.c.	0	247	0	247

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	MUSEUM, LIBRARY, AND ARCHIVAL SCIENCES				
100168	Librarian	24	27	0	3
100388	Medical Records Administrator	3	9	0	6
	LAW AND JURISPRUDENCE				
119288	Abstract Clerk	4	0	4	0
110108	Attorney	281	9	270	0
119168	Claim Man	5	0	5	0
119288	Para-legal Clerk	0	0	0	0
	RELIGION AND THEOLOGY				
120108	Clergyman	0	17	0	17
	WRITING				
132288	Copy Reader/Script Reader	5	0	5	0
132088	Copy Writer	36	18	18	0
132018	Editor, Newspaper	0	0	0	0
130088	Freelance Writer	0	9	0	9
132268	Reporters/Correspondents	17	0	17	0
139288	Technical Publications Writer	6	9	0	3

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
137288	Translator	0	9	0	9
132068	Writing, n.e.c.	0	17	0	17
	ART WORK				
142051	Designer	39	45	0	6
142081	Floral Designer	0	35	0	35
141081	Illustrator/Commercial Artist[b]	26	97	0	71
143062	Photographer/Cameraman[b]	92	62	30	0
149053	Art Work, n.e.c.	0	27	0	27
	ENTERTAINMENT AND RECREATION				
159148	Announcer	38	62	0	24
153228	Athletics and Sports	0	53	0	53
153348	"	0	9	0	9
153874	"	0	9	0	9
150048	Dramatics	0	9	0	9
152048	Music	0	115	0	115

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	ADMINISTRATIVE SPECIALTIES				
164068	Advertising Management	0	9	0	9
160188	Accounting/Auditing[b]	648	458	190	0
161118	Budget and Management Analysis	0	9	0	9
166288	Claim Examiner	9	0	9	0
160288	Cost Estimator	89	0	89	0
168168	Credit Manager	60	29[a]	31	0
169188	Estate Planner/Underwriter[b]	88	35	53	0
168287	Inspector, Building	0	27	0	27
168288	Inspectors and Investigators, n.e.c.	0	9	0	9
169168	Office Manager	639	317	322	0
168168	Park Ranger	8	29[a]	0	21
166118	Personnel Director	41	88	0	47
165068	Public Relations	129	62	67	0
162158	Purchasing Agent[b]	43	140	0	97
162118	Purchasing Management, n.e.c.	0	9	0	9
168240	Safety Inspector	2	0	2	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
168168	Safety Man (insurance)	14	29[a]	0	15
163118	Sales and Distribution Management	0	149	0	149
166168	Special Agent (insurance)	37	0	37	0
162288	Title Clerk	2	0	2	0
169118	Administrative Specialties, n.e.c.	0	18	0	18
	MANAGERS AND OFFICIALS, N.E.C.				
186168	Bank Cashier	443	79	364	0
182168	Construction Management	0	140	0	140
186118	Controller	1	27	0	26
180131	Field and Craft Supervisor	622	0	622	0
187118	Health Administration	52	80	0	28
186288	Loan Officer	139	17	122	0
189168	Manager Trainee	312	537	0	225
183168	Manufacturing Management	0	18	0	18
188118	Medical Director	3	0	3	0
187168	Service Managers, n.e.c.[b]	5	229	0	224

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
183118	Officer/Director/District Manager[b]	938	44	894	0
184268	Transport, Communication, Utilities Mgt.	0	9	0	9
186168	Wholesale and Retail Trade Mgt., n.e.c.[b]	69	687	0	618
189118	Plant Manager	0	35	0	35
188188	Public Administration Management	0	9	0	9
	MISC. PROF., TECH., MGRIAL.				
196283	Aircraft Pilots and Navigators	143	88	55	0
191287	Appraiser, Real Estate	0	0	0	0
197168	Boat Captain	479	18	461	0
197133	Boat Mate and Boat Pilot[b]	306	106	200	0
197130	Engineer, Marine	18	0	18	0
.91118	Leaseman	4	0	4	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
199187	Radiation Therapy Technologist	0	0	0	0
193168	Radio Operator	0	44	0	44
199381	Radiographer	28	62	0	34
195228	Recreation Leader	70	18	52	0
195108	Social Worker/Assistant	267	211	56	0
197133	Tugboat Captain	3	0	3	0
199168	Misc. Prof., Tech., Mgrial., n.e.c.	0	35	0	35
CLERICAL AND SALES					
	STENOGRAPHY, TYPING, FILING, ETC:				
204288	Claims Clerk (insurance)	89	9	80	0
209388	Clerk-Typist[b]	740	1,066	0	326
206388	File Clerks	0	282	0	282
208588	Misc. Office Machine Work	0	9	0	9
205368	Personnel Clerk	98	53	45	0
209688	Proofreader	0	35	0	35
201368	Secretary	959	3487	0	2528

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
202388	Stenographer	446	263	183	0
203588	Typist	55	642	0	587
209588	Stenography, Typing, Filing; n.e.c.	0	3,378	0	3,378
	COMPUTING AND ACCOUNT-RECORDING				
219488	Accounting Clerk	479	422	57	0
210388	Bookkeeper, Hand	357	1,162	0	805
215388	Bookkeeping, Machine	66	35	31	0
211368	Cashier	645	2404	0	1759
219388	Clerk, General Office[b]	1853	1233	620	0
216488	Computing Machine Work	0	123	0	123
213582	Key-Punch Operator	474	422	52	0
215488	Payroll Clerk	102	132	0	30
213382	Peripheral E. D. P. Equipment Operator[b]	46	140	0	94
213782	Tabulating Machine Operator	4	0	4	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
212368	Teller Service	0	115	0	115
217288	Transit Clerk	18	0	18	0
219588	Computing and Account Recording, n.e.c.	31	35	0	4
	MATERIAL AND PRODUCTION RECORDING				
223887	Central Supply Worker	0	9	0	9
222197	Expeditor	10	18	0	8
221368	Production Clerk	4	36	0	32
222477	Shipping/Receiving Clerk	470	485	0	15
223476	Stock Clerk[c]	822	895	0	73
224588	Weighing	0	9	0	9
229587	Material and Production Recording, n.e.c.	0	17	0	17
	INFORMATION AND MESSAGE DISTRIBUTION				
237368	Admitting Clerk/Receptionist	45	845	0	800
233388	Mail Carrier	6	9	0	3
231588	Mail Clerk	0	97	0	97

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
230878	Messengers	0	44	0	44
239588	Meter Reader	35	9	26	0
232368	Post Office Clerk	5	27	0	22
236588	Telegraph Operator	0	9	0	9
235862	Telephone Operator	185	749	0	564
239588	Info. and Message Dist., n.e.c.	0	9	0	9
	MISCELLANEOUS CLERICAL				
241168	Adjuster, Claim	33	18	15	0
249368	Claim, Credit, Service, and Room Clerks[b]	203	238	0	35
240588	Collector	0	18	0	18
249388	Loan Closer/Medical Records Clerk[b]	158	44	114	0
249268	Miscellaneous Clerical, n.e.c.	0	45	0	45

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	SALESWORK, SERVICES				
250358	Salesman or Broker, Real Estate	230	27	203	0
250258	Salesman, Insurance	667	70	597	0
258358	" , Printing and Advertising	0	9	0	9
251258	" , Securities	158	9	149	0
252358	" , Service	592	0	592	0
	SALESWORK, COMMODITIES				
260289	Salesman, Commodities[c]	1,688	2,985	0	1,297
	MISCELLANEOUS MERCHANDISING				
299287	Appraiser, Automobile	0	0	0	0
298081	Designer, Display	0	18	0	18
299138	Manager, Department (Retail)	238	35	203	0
291868	Peddling	0	18	0	18
290478	Sales Clerk	2,656	1277	1379	0
292358	Salesman-Driver (Routeman)	369	106	263	0
299476	Miscellaneous Merchandising, n.e.c.	0	564	0	564

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
SERVICES					
	DOMESTIC SERVICES[d]				
301887	Day Worker	NA	255	--	--
304887	Houseman and Yardwork	"	220	--	--
306878	Housework, Domestic	"	2,228	--	--
309878	Domestic Services, n.e.c.	"	423	--	--
	FOOD AND BEVERAGE PREPARATION AND SERVICE				
312878	Bartender	57	194	0	137
313131	Chef[c]	60	35	25	0
313381	Cook	935	731	204	0
318887	Dishwasher	521	1083	0	562
311138	Food Serving, n.e.c.	296	1506	0	1210
319138	Food Service Supervisor	34	9	25	0
310868	Hostess, Restaurant or Coffee Shop	38	18	20	0
318884	Kitchen Work, n.e.c.	0	0	0	0
317884	Miscellaneous Food and Beverage Prep.	0	115	0	115
311878	Waitress and Waiter	1,566	2668	0	1102
319818	Food and Beverage Preparation, n.e.c.	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	LODGING AND RELATED SERVICES				
324878	Bellmen and Related Service	0	44	0	44
320137	Boardinghouse and Lodginghouse keeping	0	9	0	9
321138	Housekeeping (except domestic)	950	18	932	0
323884	Maids (except domestic)	0	458	0	458
	BARBERING, COSMETOLOGY, AND RELATED SERVICES				
330371	Barber	7	18	0	11
332271	Cosmetologist	729	264	465	0
338381	Embalmer	13	0	13	0
331878	Manicurist	0	9	0	9
334878	Massuers	0	9	0	9
	AMUSEMENT AND RECREATION SERVICES				
342866	Device/Concession Attendents	0	106	0	106
341368	Golf Court, Tennis Court, etc. Attendents	0	9	0	9
349466	Amusement and Recreation Services, n.e.c.	0	18	0	18
	MISCELLANEOUS PERSONAL SERVICES				
356874	Animal Care, n.e.c.	0	35	0	35

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
355878	Attendents; Hospitals, Morgues, etc.	1,285	1823	0	538
351878	Baggage Porter	0	9	0	9
352878	Hostesses and Stewards, n.e.c.	0	35	0	35
359878	Teacher Aide	73	140	0	67
354878	Unlicensed Midwives and Practial Nursing	0	70	0	70
359873	Miscellaneous Personal Services, n.e.c.	0	9	0	9
	APPAREL AND FURNISHINGS SERVICES				
362381	Dry Cleaning	0	9	0	9
361138	Laundering	0	9	0	9
361884	"	0	53	0	53
361885	"	0	9	0	9
361887	"	432	114	318	0
363885	Pressing Services	0	256	0	256
365381	Shoe Repair	13	9	4	0
369686	Apparel and Furnishings Services, n.e.c.	0	115	0	115
	PROTECTIVE SERVICES				
378868	Crossing Watchmen and Bridge Tenders	0	9	0	9
376868	Detective, Private	27	18	9	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
375078	Detectives and Policemen, Public Service	0	18	0	18
375118	"	0	9	0	9
375268	"	0	70	0	70
375868	"	0	9	0	9
373884	Fireman and Fire Service Worker[b]	103	53	50	0
375168	Harbor Master	0	27	0	27
372868	Security Guard (Watchman)	1,464	475	989	0
377868	Sheriffs and Baliffs	0	9	0	9
379868	Protective Services, n.e.c.	0	9	0	9
	BUILDING AND RELATED SERVICES				
381887	Cleaning and Related Work	296	1928	0	1632
382884	Custodian	745	9	736	0
388868	Elevator Operator	0	35	0	35
389567	Building and Related Services, n.e.c.	0	45	0	45
FARMING, FORESTRY, AND FISHING[e]					
	PLANT FARMING				
402887	Cotton Farming	NA	18	--	--
404884	Fruit and Nut Farming	"	27	--	--

D O T CODE	OCCUPATIONS	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (U-V)	EXCESS SUPPLY (V-U)
407181	Gardening	NA	26	--	--
407884	Groundskeeping	172	176	0	4
406887	Horticultural Specialties	0	35	0	35
403883	Vegetable Farming	NA	18	--	--
409675	Plant Farming, n.e.c.	"	167	--	--
	ANIMAL FARMING				
411884	Dairy Farming	NA	44	--	--
413884	Livestock Farming	"	44	--	--
412884	Poultry Farming	"	35	--	--
419884	Animal Farming, n.e.c.	"	9	--	--
	MISCELLANEOUS FARMING AND RELATED				
421883	Field Worker	NA	114	--	--
421181	General Farming	"	35	--	--
421887	"	"	44	--	--
429887	Sawyer, Lumber Cutter	0	9	0	9
420131	Miscellaneous Farming, n.e.c.	NA	9	--	--
	FISHERY AND RELATED WORK				
441887	Forest Conservation	0	9	0	9
	Fishery	0	98	0	98

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (V)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
442138	Forest Products Production (except logging)	0	9	0	9
449884	Forestry, n.e.c.	0	9	0	9
	AGRICULTURAL SERVICES				
461271	Ginner	0	9	0	9
466887	Livestock Caretaker	3	0	3	0
PROCESSING					
	METAL PROCESSING				
501782	Dip-Plating	0	9	0	9
500380	Electro-Plating	3	0	3	0
503887	Sandblasting	67	114	0	47
504382	Heat-Treater	0	0	0	0
	ORE-REFINING				
514884	Caster	17	0	17	0
518381	Coremaker, Foundary	0	9	0	9
512782	Furnace Operator	0	9	0	9
519887	General Foundary Worker	42	105	0	63
515782	Grinding Mill Operator	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	FOOD AND RELATED PRODUCTS PROCESSING				
526781	Baker	148	35	113	0
525381	Butcher	253	18	235	0
524381	Coating, Icing, Decorating	0	9	0	9
524884	"	0	9	0	9
522782	Culturing, Melting, etc.	0	9	0	9
529886	Factory Helper	520	194	326	0
520885	Feed Mixer and Feed Mill Operator	0	9	0	9
521782	Grinder Operator	0	9	0	9
523885	Heating, Rendering, etc.	0	9	0	9
525884	Meat Boner, Skinner	31	97	0	66
520487	Mixing	0	9	0	9
521887	Milling	0	35	0	35
529675	Food and Related Processing, n.e.c.	0	84	0	84
	PAPER AND RELATED PROCESSING				
533782	Paper and Related Products Processing	0	9	0	9
	PETROLEUM PROCESSING				
541782	Crude Oil Treater	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
542280	Distilling, Subliming, and Carbonizing	0	9	0	9
549782	Gasman	6	0	6	0
544782	Grinding and Crushing	0	9	0	9
549280	Pumpman, Refinery	0	0	0	0
	CHEMICALS AND RELATED PROCESSING				
558885	Chemical Operator	357	0	357	0
554782	Coating, Calendering, Laminating, etc.	0	18	0	18
558782	Conveyor Operator	0	0	0	0
552886	Distilling	0	9	0	9
555887	Grinding and Crushing	0	9	0	9
553782	Heating, Baking, Drying, Melting, etc.	0	27	0	27
550885	Mixing and Blending	0	18	0	18
559887	Sampler	2	9	0	7
559885	Tire Recapper	0	0	0	0
559452	Chemicals and Related Processing, n.e.c.	0	44	0	44
	WOOD AND WOOD PRODUCTS PROCESSING				
563381	Drying, Seasoning, and Related Work	0	9	0	9
563885	"	0	18	0	18

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	STONE, CLAY, AND GLASS PRODUCTS PROCESSING				
572782	Baking, Drying, and Heat-Treating	0	9	0	9
575782	Bottle Machine Operator	0	0	0	0
575782	Brick and Tile Machine Operator	0	0	0	0
575885	Concrete Pipe Machine Operator	0	0	0	0
575781	Concrete and Stone Fabricating	84	0	84	0
579683	Stone, Clay, and Glass Processing, n.e.c.	0	35	0	35
	LEATHER AND TEXTILE PRODUCTS PROCESSING				
582885	Washing, Steaming, and Saturating	0	9	0	9
589787	Leather and Textiles Processing, n.e.c.	0	17	0	17
	PROCESSING, N.E.C.				
590887	Laborer, Processing Products	4,852	44	4,808	0
MACHINE TRADES					
	METAL MACHINING				
606782	Boring	0	9	0	9
609840	Inspector, General	37	0	37	0
600381	Layout Man (Machine Shop)	11	0	11	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
600280	Machinist	322	229	93	0
605380	Milling and Planing	0	9	0	9
609885	Production Machine Operator	170	27	143	0
607782	Sawing, n.e.c.	0	9	0	9
601380	Template Maker	1	0	1	0
601280	Tool and Die Maker/Set-Up Operator[b]	16	36	0	20
601380	Toolmakers, n.e.c.	0	9	0	9
603280	Precision Grinder	5	0	0	0
609553	Metal Machining, n.e.c.	0	35	0	35
	METALWORKING, N.E.C.				
610381	Blacksmith	9	0	9	0
617380	Brake Operator (Power)	7	9	0	2
612380	Die Setter (Forging)	0	0	0	0
614382	Extruding and Drawing	0	9	0	9
616380	Fabricating Machine Work	0	493	0	493
612131	Forging, n.e.c.	0	9	0	9
619380	Metal Fabricator	184	18	166	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
617782	Metal Forming, n.e.c.	0	9	0	9
617280	Press Operator, Heavy Duty	13	0	13	0
615885	Punching and Shearing, n.e.c.	0	9	0	9
615782	Shear Operator, Power	30	44	0	14
613782	Sheet and Bar Rolling	0	9	0	9
619281	Miscellaneous Metalworking, n.e.c.	0	9	0	9
619380	"	0	18	0	18
619782	"	0	9	0	9
619885	"	0	220	0	220
661380	Modelmaker (Patternmaker, Metal)	1	0	1	0
	MECHANICAL REPAIRING				
637281	Air Conditioning and Refrigeration	336	140	196	0
620281	Automobile Mechanic	270	1092	0	1044
621781	Aircraft Accessory Mechanic	0	9	0	9
621281	" Engine Mechanic	51	229	0	178
621281	" Jet Engine Mechanic	10	0	10	0
630281	General Industry Machine Repairman	0	44	0	44
639885	Mechanic, Bicycle	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
625281	Mechanic, Diesel	671	105	566	0
624281	" , Farm Equipment	147	9	138	0
638281	" , Maintenance (Textiles)	85	62	23	0
623281	" , Marine	152	26	126	0
638281	Millman (Woodworking)	56	88	32	6
633281	Office Machine Service	225	18	207	0
639281	Sewing Machine Repair	18	27	0	9
625281	Small Engine Repair	72	97	0	25
638221	Millwright	199	0	199	0
	PAPERWORKING				
640782	Paper Cutting, Winding, and Related Work	0	9	0	9
642886	Paper Sewing	0	9	0	9
643885	Paper Corrugating	0	35	0	35
649885	Paperworking, n.e.c.	0	44	0	44
	PRINTING				
650582	Linotype Operator	0	18	0	18
651782	Offset Pressman/Cylinder Pressman[b]	64	106	0	42

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
652138	Printing Machine Work	0	9	0	9
659687	Printing, n.e.c.	0	9	0	0
	WOOD MACHINING				
660280	Cabinet Maker	45	62	0	17
667782	Gang Saw Operator	9	132	0	123
669380	Milliman (Woodworking)	(see "MECHANICAL REPAIRING, N.E.C": D.O.T. 638281)			
665886	Milling and Planing (Wood)	0	0	0	0
669137	Wood Machining, n.e.c.	0	9	0	9
669587	"	0	36	0	36
	TEXTILE MACHINE WORK				
683782	Weavers and Related Work	0	26	0	26
	MACHINE WORK, N.E.C.				
692885	Fabrication of Products (Assorted)	0	9	0	9
699887	Oiler and Greaser	56	97	0	41
690885	Plastics, Synthetics, Rubber, Leather	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
BENCH WORK					
FABRICATION, ASSEMBLY, REPAIR OF METAL PRODUCTS; N.E.C.					
706884	Assembler, Product / Metal Unit [b]	478	1435	0	957
705884	Bench Grinder, Chipper	7	70	0	63
704381	Engraving and Etching	12	9	3	0
700381	Jewelry Repair	35	18	17	0
709484	n.e.c.	0	88	0	88
FABRICATION AND REPAIR OF SCIENTIFIC AND MEDICAL APPARATUS; PHOTOGRAPHIC AND OPTICAL GOODS; TIMEPIECES					
712281	Biomedical Equipment	5	9	0	4
712381	Dental Laboratory Technician	103	18	85	0
710281	Instrument Repairman	8	18	0	10
713281	Opthalmic Goods	0	9	0	9
711281	Optical Lenses and Instruments	0	18	0	18
711884	"	0	9	0	9
713381	Optician	0	18	0	18
719281	Relay Tester	14	0	14	0
715281	Watches, Clocks, and Parts	0	18	0	18

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	ASSEMBLY AND REPAIR OF ELECTRIC EQUIPMENT				
723884	Appliance Repair, Household	41	62	0	21
723381	"	0	9	0	9
726781	Assembler, Electronics	0	80	0	80
721281	Electric Motor Repairman	68	9	59	0
721884	"	0	18	0	18
720281	Radio and T. V. Repair	102	18	84	0
720884	"	0	9	0	9
724685	Winding and Assembly of Coils, etc.	0	9	0	9
724884	"	0	18	0	18
726281	Accessories, n.e.c.	0	9	0	9
726884	"	0	35	0	35
729884	Assembly and Repair of Elec. Equip., n.e.c.	0	35	0	35
729884	"	0	9	0	9
729887	"	0	35	0	35

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
FABRICATION AND REPAIR OF PRODUCTS MADE FROM ASSORTED MATERIALS					
737387	Ammunition, Fireworks, Explosives, etc.	0	9	0	9
737887	"	0	76	0	76
730281	Musical Instruments	0	9	0	9
734887	Notions	0	9	0	9
736587	Ordnance and Accessories	0	18	0	18
736884	"	0	9	0	9
732884	Sporting Goods	0	9	0	9
739387	n.e.c.	0	0	0	0
739884	"	0	27	0	27
	PAINTING, DECORATING, AND RELATED WORK				
741884	Spray Painter	94	105	0	11
749884	Painting, Decorating, and Related, n.e.c.	0	18	0	18
FABRICATION AND REPAIR OF PLASTICS; SYNTHETICS, RUBBER, AND RELATED PRODUCTS					
751887	Laying Out and Cutting	0	9	0	9
754884	Miscellaneous Plastic Products	0	27	0	27
750781	Tires, Tubes, Treads, etc. (except Recap)	0	18	0	18

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	FABRICATION AND REPAIR OF WOOD PRODUCTS				
762885	Assembly of Wood Products, n.e.c.	0	18	0	18
763884	Furniture, Hardware Assembler	0	27	0	27
763381	Furniture Finisher	61	18	45	0
761887	Sander	0	18	0	18
766684	n.e.c.	0	9	0	9
769281	"	0	9	0	9
769884	"	0	9	0	9
769887	"	0	62	0	62
	FABRICATION AND REPAIR OF SAND, STONE, CLAY, AND GLASS PRODUCTS				
776684	Asbestos, Polishing Products, and Abrasives	0	9	0	9
775884	Grinding, Filing, Polishing, Etching, etc.	0	18	0	18
779884	n.e.c.	0	9	0	9
	FABRICATION AND REPAIR OF TEXTILE, LEATHER, AND RELATED PRODUCTS				
781884	Cutter, Hand or Machine	50	35	15	0
788884	Fabrication and Repair of Footwear, n.e.c.	0	9	0	9
780381	Furniture Upholsterer	166	53	13	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
782782	Handsewing, Embroidering, etc.	0	9	0	9
782787	"	0	9	0	0
783884	"	0	106	0	106
782887	"	0	9	0	9
786787	Sewing Machine Operator[c]	795	801	0	6
785281	Tailors and Dressmakers	0	9	0	9
785381	Seamstress	106	273	0	167
789687	n.e.c.	0	18	0	18
789884	"	0	44	0	44
	BENCH WORK, N.E.C.				
794885	Fabrication of Paper Products, n.e.c.	0	45	0	45
STRUCTURAL WORK					
	METAL FABRICATING				
807884	Assembler, Subassembly	81	18	63	0
807381	Automobile Body Repair	332	185	147	0
807884	Boat Repairman	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
805281	Boilermaker	0	27	0	27
805781	"	0	9	0	9
805887	"	0	18	0	18
809884	Driller	0	53	0	53
801281	Fitter	21	9	12	0
801131	"	0	18	0	18
801884	"	0	27	0	27
801887	"	0	18	0	18
809988	Helper, General	969	0	969	0
809381	Layout Man (Structural)	51	0	51	0
800884	Riveter	0	9	0	9
804281	Sheetmetal Worker	475	88	387	0
804884	"	0	18	0	18
804886	"	0	9	0	9
806381	Shipfitter	452	53	399	0
801781	Structural Steel Worker	253	132	121	0
806281	Transportation Equipment Fabrication	0	9	0	9
306884	Assemblers, Metal; n.e.c.	0	88	0	88

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	WELDERS, FLAME CUTTERS, AND RELATED WORK				
810884	Arc Welder	765	171	0	406
812884	Combination Arc and Gas Welders	1,382	70	1,312	0
816884	Flame Cutter, Hand	70	9	61	0
816782	Flame Cutting, Machine	31	0	31	0
811884	Gas Welder	14	0	14	0
810782	Welding Machine Operator	49	18	31	0
810084	"	0	9	0	9
819381	Welding and Flame Cutting, n.e.c.	0	18	0	18
819887	"	0	255	0	255
	ELECTRICAL ASSEMBLING, INSTALLING, REPAIR				
829381	Cable Splicer	5	9	0	4
824281	Electrician, n.e.c.	2,189	247	1942	0
821381	Lineman/Cableman	111	53	58	0
828281	Mechanic, Electronics	22	150	0	128
821884	Meter Installer	0	0	0	0
821381	Power Transformer Repairman	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
823281	Radio Mechanic	4	44	0	40
828281	Technician, Communication	0	141	0	141
822381	Telephone Installer	45	80	0	35
821281	Electrical Assembling, etc.; n.e.c.	0	53	0	53
822281	"	0	70	0	70
825281	"	0	27	0	27
827281	"	0	18	0	18
827381	"	0	18	0	18
827884	"	0	62	0	62
829281	"	0	132	0	132
PAINTING, PLASTERING, WATERPROOFING, CEMENTING, AND RELATED WORK					
844844	Cement Mason	276	202	74	0
844887	Cement and Concrete Finishers, n.e.c.	0	18	0	18
840884	Construction and Maintenance Painters	1,250	687	563	0
842288	Dry Wall Applicator	146	0	146	0
845781	Painter, Automobile	73	9	64	0
842781	Plasterer	46	88	0	42
845885	Transport Equipment Painters, n.e.c.	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	EXCAVATING, GRADING, AND PAVING				
859782	Boring; Drilling Machine Operator	8	0	8	0
852883	Concrete Paving	0	18	0	18
851884	Drainage and Related Work	0	45	0	45
850883	Excavating, Grading, and Related, n.e.c.	0	299	0	299
859883	Heavy Equipment Operator[b]	365	528	0	202
859281	Excavating, Grading, Paving; n.e.c.	0	9	0	9
859884	"	0	9	0	9
	CONSTRUCTION OCCUPATIONS, N.E.C.				
861381	Bricklayer	454	114	340	0
861887	Brick and Stonemasons; Tilesetters n.e.c.	0	97	0	97
860381	Carpenter	1,630	1,233	397	0
860131	"	0	9	0	9
860281	"	0	9	0	9
860887		0	502	0	502
864781	Carpet or Floor Layer, n.e.c.	227	18	209	0
865781	Glazier and Related Work	1,013	18	995	0
864887	Floor Laying and Finishing	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
861887	Mason Tender	34	105	0	71
862381	Plumber/Pipefitter	674	352	322	0
862131	Plumbers, Gas and Steam Fitters, n.e.c.	0	18	0	18
862281	"	0	9	0	9
862782	"	0	18	0	18
862884	"	0	326	0	326
862885	"	0	9	0	9
862887	"	0	18	0	18
869884	Rig Builder	112	282	0	170
866381	Roofer	83	150	0	65
866887	"	0	62	0	62
869884	Roustabout	932	308	624	0
863884	Sider	65	53	12	0
861781	Tile Setter, Terrazo Worker	21	44	0	23
869887	Miscellaneous Construction Work	477	4,332	0	3,855

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	STRUCTURAL WORK, N.E.C.				
899281	Dockmaster	0	35	0	35
899381	Maintenance Man, Building	462	397	65	0
899884	" , Equipment	564	150	414	0
899133	Miscellaneous Structural Work, n.e.c.	0	9	0	9
	MISCELLANEOUS WORK				
MOTOR FREIGHT					
912368	Air Transport, n.e.c.	0	44	0	44
912782	"	0	9	0	9
912887	"	0	9	0	9
913883	Ambulance Driver; Attendent	33	27	6	0
913463	Bus Driver	93	80	13	0
913883	Chauffer	21	27	0	6
911887	Deck Hand	710	290	420	0
912168	Dispatcher, Aircraft	0	0	0	0
913168	" , Motor	0	0	0	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
914381	Gauger	25	9	16	0
911883	Longshoreman	226	35	191	0
919883	Motorman	0	0	0	0
914782	Oil Pumper	103	0	103	0
913468	Passenger Transport, n.e.c.	0	9	0	9
915878	Parking Lot and Related Service Work	0	98	0	98
910383	Railroad Transport Work, n.e.c.	0	9	0	9
910687	"	0	9	0	9
910884	"	0	9	0	9
915867	Service Station Attendent	133	625	0	492
913463	Taxi Driver	136	80	56	0
919368	Ticket Agent	9	9	0	0
911884	Water Transport, n.e.c.	0	62	0	62
919168	Motor Freight, n.e.c.	0	62	0	62
919478	"	0	27	0	27
919833	"	0	0	0	0
919887	"	0	44	0	44

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	PACKAGING AND MATERIALS HANDLING				
921280	Cranemen, Hoistmen, Derrickmen, Riggers	80	9	71	0
922883	Forklift Operator and Related Work	72	458	0	386
921138	Hoisting and Conveying, n.e.c.	0	9	0	9
921833	"	0	79	0	79
929887	Material Handler	519	880	0	281
922087	Moving and Storing	0	9	0	9
922882	"	0	9	0	9
922884	"	0	9	0	9
922885	"	0	9	0	9
922887	"	0	1233	0	1233
920132	Packaging	0	9	0	9
920885	"	0	158	0	158
920887	"	0	546	0	546
929133	Packaging and Materials Handling, n.e.c.	0	9	0	9
929782	"	0	18	0	18
929883	"	0	70	0	70
929885	"	0	18	0	18

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
	EXTRACTION OF MINERALS				
930886	Boring, Drilling, and Cutting	0	18	0	18
930280	Cable Driller	102	360	0	258
930884	Caser	34	0	34	0
930280	Cementer, Oil Well	0	0	0	0
930883	Clean Cut Driller	0	0	0	0
930782	Derrickman, Petroleum and Gas	78	53[a]	25	0
931884	Dumper Bailer Operator	0	9	0	9
931884	Gun Perforator Loader	1	0	1	0
932883	Loading and Conveying, n.e.c.	0	9	0	9
930884	Mud Plant Operator	4	0	4	0
931782	Perforator Operator, Oil Well	8	0	8	0
939782	Pumper, Head	1	0	1	0
930782	Rotary Drill Operator	186	53[a]	133	0
930381	Service Unit Operator, Oil Well	28	0	28	0
931781	Serviceman, Oil Well	32	18	14	0
930188	Technical Operator, Petroleum	5	0	5	0

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
930883	Well Puller	38	0	38	0
939887	Mineral Extraction, n.e.c.	0	9	0	9
	LOGGING				
942782	Log Sorting, Gathering, Storing	0	9	0	9
940884	Timber Cutting	0	53	0	53
949138	Timber Procurement	0	9	0	9
949887	Logging, n.e.c.	0	9	0	9
	PRODUCTION AND DISTRIBUTION OF UTILITIES				
957382	Control Room Operator	1	0	1	0
952168	Dispatcher	33	0	33	0
950782	Engineer, Stationary	101	70	31	0
951885	Firing and Related Work	0	35	0	35
952887	Electric Light and Power, n.e.c.	0	9	0	9
955782	Incinerator Operator	0	0	0	0
952782	Power Plant Operator	19	9	10	0
953387	Production and Distribution of Gas	0	9	0	9
954782	Pump Station Operator (waterworks)	0	9	0	9

D O T CODE	OCCUPATION	VACANCIES (V)	UNEMPLOYED (U)	EXCESS DEMAND (V-U)	EXCESS SUPPLY (U-V)
957282	Transmission of Communications, n.e.c.	0	9	0	9
957388	"	0	9	0	9
	AMUSEMENT, RECREATION, AND MOTION PICTURE WORK				
961868	Modeling and Related, n.e.c.	0	9	0	9
960382	Motion Picture Projecting	0	18	0	18
963168	Radio and T.V. Production	0	9	0	9
	GRAPHIC ART WORK				
970381	Art Work; Brush, Spray, or Pen	0	70	0	70
977844	Bookbinder	38	0	38	0
979381	Copy Cameraman	0	9	0	9
976381	Darkroom Work, n.e.c.	0	18	0	18
976885	"	0	9	0	9
976887	"	0	18	0	18
971382	Photoengraving	0	9	0	9
972382	Photolithographer	26	0	26	0
973381	Printer	0	27	0	27
979782	Graphic Art Work, n.e.c.	0	9	0	9

VITA

Jeffrey A. Reed was born on October 27, 1948 in Seattle, Washington. He received his B.A. degree (cum laude) in economics from Western Washington State College in Bellingham, Washington in August of 1971. His research interests include labor economics, macroeconomics, and public finance. He has served as an economic consultant to the Public Affairs Research Council of Louisiana, as a graduate teaching assistant and instructor of economics at Louisiana State University, and is currently an assistant professor of economics at the University of Richmond. He is a member of the American, Western, and Southern Economic Associations.

EXAMINATION AND THESIS REPORT

Candidate: Jeffrey A. Reed

Major Field: Economics

Title of Thesis: Frictional, Structural, and Cyclical Factors in Louisiana Unemployment

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

July 9, 1976